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## ABSTRACT

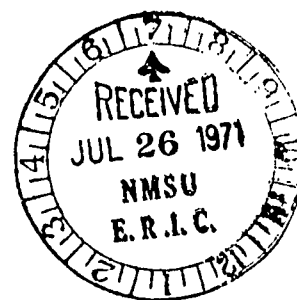
The summary final report of the Anthropology Curriculum Project is intended to provide an account of accomplishments and findings. The purpose of the Project was to develop and field test systematic content in anthropology for elementary social studies, with progressive development centered on mastery of the fundamental concepts and their application. Procedures included: 1) identification of major concepts and propositions in the discipline of anthropology; 2) determination of a sequence; 3) development of material for pupil and teacher use; 4) training of teachers; and, 5) evaluation of units based on observation and pupil and teacher feedback. The formal evaluation of the project utilized a pre- and post-test treatment design with the experimental variable teacher training in anthropology. Summaries of seven studies are appended here, and reviewed in ED 045 512. The project staff interprets the results to indicate the following: 1) the subject matter is interesting; 2) students are stimulated by a technical, cognitive approach to teaching; 3) anthropology may be presented as a scientific discipline; 4) the single discipline approach is suitable; 5) the materials are adapted to use by teachers without training in anthropology; and, 6) the materials provide a framework for encouraging growth in anthropological understanding. (Author)

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## FINAL REPORT

# THE DEVELOPMENT OF A SEQUENTIAL CURRICULUM IN ANTHROPOLOGY, GRADES 1 - 7

Project Number: H-128  
Contract Number: OE-4-10-204  
May 14, 1964



Marion J. Rice  
Wilfrid C. Bailey

U. S. Department of Health, Education,  
and Welfare  
U. S. Office of Education

Anthropology Curriculum Project  
University of Georgia  
Athens, Georgia

May 1, 1971

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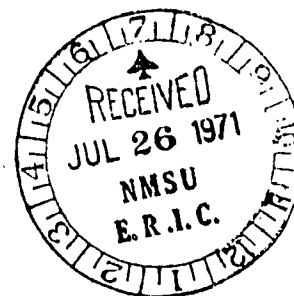
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Anthropology Curriculum Project  
University of Georgia  
Athens, Georgia

May 1, 1971

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## ABSTRACT

"A Sequential Curriculum in Anthropology for Grades 1-7" was a curriculum development project funded by the U. S. Office of Education for the period 1964-1969. The Project is continuing under the auspices of the University of Georgia as a framework for the training of social science educators in curriculum development and research. A summary of developmental and research projects, contracted and supplementary, is given in Table 1.1, pages 3-5.

The purpose of the Project was to develop and field test systematic content in anthropology for elementary social studies, with progressive development centered on mastery of the fundamental concepts and their application. Procedures included: identification of major concepts and propositions in the discipline of anthropology; determination of a sequence; development of material for pupil and teacher use; training of teachers in anthropology; and evaluation of the units based on observation and pupil and teacher feedback. Summaries of Project evaluation studies are included in the appendices, pages 113-197.

The formal evaluation of the Project utilized a pre- and post-test treatment design with the experimental variable teacher training in anthropology. Evaluation studies indicated no significant difference in pupil achievement using the anthropology materials when taught by teachers trained in anthropology as compared with teachers who did not receive the special anthropology training in the summer institutes.

The Project staff interprets the results of its evaluation to indicate the following: the subject matter of anthropology is interesting to elementary school children; they are stimulated by a technical, cognitive approach to the teaching of anthropology; anthropology may be presented as a scientific discipline; the single discipline approach is suitable to elementary presentation; teacher training in anthropology is not a significant variable in pupil achievement in anthropology; the curriculum materials in anthropology are adapted to use by teachers without training in anthropology; and the materials provide a framework for encouraging growth in anthropological understanding. The language emphasis of the Project antedated the new linguistic emphasis which is emerging in subject matter instruction.

Of the many people who participated in the Project, a special word of thanks is due the teachers of the cooperating schools in Georgia, who are listed in Appendix D, pages 93-100, and to their students. Their participation in the important phase of field testing was essential to the execution of the Project.

Materials of the Anthropology Curriculum Project may be obtained from the Project.

M. J. Rice  
Wilfrid C. Bailey

## CHAPTER I

### HISTORY

This summary final report of the Anthropology Curriculum Project is intended to provide an account of accomplishments and findings. It is not intended to be a historical document giving a sequential account of curriculum development.

Contract Period. The Anthropology Curriculum Project was funded by the United States Office of Education under the aegis of "Project Social Studies" after expansion of the Cooperative Research Program to include social studies. The grant period was May 1, 1964 to June 1, 1969.

During this period, the project met its contract commitment to produce teaching units for Levels 1, 2, 4, 5, and 7, but failed to produce the pupil text for Grades 3 and 6. Units beyond the contract commitment were developed for Levels K, 8, and 9, and five alternate forms of unit material were developed, including a film "Archeological Methods." A summary of unit development and evaluation studies is given in Table 1.1.

#### New Curriculum Development

The Project was not terminated, notwithstanding the end of federal funding in June 1969. During 1969-70, the project completed and field tested a high school unit, Race, Caste, and Prejudice. During 1970-71, priority is being given to the completion of the pupil texts for Changing Culture, Level 3, and How Culture Changes, Level 6.



As soon as the units for levels 3 and 6 are completed, the project plans to emphasize the completion of the "American Minority Ethnic Series."

Two other current activities are designed to adapt material already developed to new needs. One is the development of material to assist teachers use the ethnographies from "Concept of Culture" and "Life Cycle" in the study of ethnic relations. The second is the adaptation of the teacher essays to provide high school students with two options--- a semester course in cultural anthropology or a year course in general anthropology.

Research Emphasis. The most important shift in project emphasis, however, has been to use curriculum development to conduct research on classroom learning. Originally, the project evaluation was based on the rather simple question of pupil achievement in anthropology (see Evaluation). Now the emphasis is on the structuring of materials to test learning theories in classroom settings. Ausubel's receptive verbal learning theory and Carroll's mastery learning theory are currently being explored.

The Anthropology Curriculum Project served as a model for the Geography Curriculum Project, which has developed four geography units for elementary school use. Two additional units are under development.

Table 1.1

SUMMARY OF DEVELOPMENTAL-RESEARCH PRODUCTS, CONTRACTED AND SUPPLEMENTARY, 1964-1969

\*The asterisk indicates a unit not included in the original contract

Level and Unit	Teacher Essay	Teacher Manual	Pupil Text	Pupil Manual	Tests	Evaluation Report
PRIMARY SPIRAL						
Level K						
*Concept of Culture: An Introduction to Cultural Anthropology	a	x		x	a	Hunt, 1968
Level 1						
Concept of Culture: Three Ethnographies--Kazak, Arunta, American	x	x	x		x	Greene, 1966 Wash, 1967
*An Inductive Approach to Teaching Concept of Culture	a	x	x	x	a	Myers, 1968
Level 2						
Development of Man and His Culture: New World Prehistory	x	x	x	x	x	Wash, 1967 SSEC, Lowrie, Macey, and Clawson, 1969
Level 3						
Cultural Change: The Changing World Today	x	x	b	b	b	

Note: a--Available, but developed originally for Level 1, Concept of Culture.

b--Pilot version to be completed in 1970-71.

Table 1.1 (Continued)

Level and Unit	Teacher Essay	Teacher Manual	Pupil Text	Pupil Manual	Tests	Evaluation Report
INTERMEDIATE SPIRAL						
Level 4 Concept of Culture: Comparative Cultures	x	x	x	x	x	Greene, 1968 Patterson, 1968 Myers, 1968 Wash, 1967
*An Inductive Approach to Teaching Concept of Culture	a	x	a	x	a	Myers, 1968
Level 5 Development of Man and His Culture: Old World Prehistory	x			x	x	Wash, 1967 Patterson, 1968 Gaines, 1971
*Programmed Text, Archeological Methodology			x		x	Thomas, 1967
*Programmed Text, Evolution			x			Fishburne, 1971
*Film Archeological Methodology						
Level 6 Cultural Change: How Change Takes Place	x	x	b	b	b	
Level 7 Life Cycle	x		x		x	
*Language, with Recording	x		x		x	

Note: c--In process.

Table 1.1 (Continued)

Level and Unit	Teacher Essay	Teacher Manual	Pupil Text	Pupil Manual	Tests	Evaluation Report
UPPER GRADES						
Junior High *Political Anthropology (with Atlanta and Fulton County Schools)			x			
*Urban Community (With Atlanta and Fulton County Schools)			x			
High School *Race, Caste, and Prejudice			x	x	x	Kleg, 1970
DIFFUSION STUDY						
1965-1968, Materials for Levels 1, 2, 4, and 5						Richburg, 1969

## CHAPTER II

## PROBLEM AND RATIONALE

The major focus of the Anthropology Curriculum Project was the development and evaluation of content specific units in anthropology for the elementary grades. This emphasis grew out of the concern for lack of content in the elementary social studies program.

Need for content. The post-Sputnik attempt to increase academic subject matter manifested itself first in elementary mathematics and natural science. Subject matter concern came later to secondary social studies, and even later to elementary social studies, where instruction had long been dominated by two non-subject matter orientations---child development and the core-activity program.

Beginning in the 1960's, a number of elementary social studies specialists---Jarolimck, Hanna, and McAulay, to name three---began to express the view that the improvement of elementary social studies instruction required an increase in academic content from the social sciences. The need for increased content was viewed as a matter of high priority, applicable to any curriculum design.

Lack of anthropology in elementary social studies. A review of elementary social studies texts and other materials in use in schools in 1963 indicated no systematic anthropology content. Notwithstanding the many recommendations to increase content from the behavioral sciences and reduce content from geography and history, social studies content continued to be largely geographical and historical in emphasis, especially in the intermediate grades. An attempt to increase content in the

elementary grades through the discipline of anthropology would therefore have the advantage of novelty. It would not be necessary to change teacher stereotypes with respect to anthropology content, since there was no specifically identifiable anthropology subject matter.

A subject matter curriculum. In theory, if not in practice, elementary social studies emphasis was on a fused rather than a single discipline curriculum. It was generally held that the segregation of content into separate disciplines was inappropriate for young children, notwithstanding the fact that opinions of authorities, rather than research evidence, was the only buttress for the consensus---a consensus which had become institutionalized in publisher's texts and recommendations of national committees.

In contrast, the work of B. Othaniel Smith and his associates at the University of Illinois indicated that the subject matter curriculum as cognitive knowledge was a fruitful alternative to a fused curriculum erected on the dubious slogan of psychological versus logical learning. The strands of such diverse fields as epistemology and ontology, classic psychology, metalogics, anthropology, linguistics, the sociology of knowledge, operant conditioning, the development of programmed learning, and a revival of interest in learning as cognition lead to the development of the explicit rationale that the substance and the vehicle of school instruction is symbolic acquisition.

Rationale of cognitive, single discipline approach. The development of the cognitive powers of the child does not emerge from the raw act of experience, as advocates of child development contend, but from the acquisition and application of discriminating labels to experience.

Knowledge as a symbol does not replace subject matter, but affirms it with a new rationale.

The sciences, as systematic bodies of knowledge, are particular representations of reality, which depend on an arbitrary system of symbols. The subject matter curriculum does not merely transmit a body of knowledge; it permits the child to acquire a system of symbols without which he cannot perceive a particular kind of reality.

The acquisition and manipulation of symbols is the only means by which reality is apprehended, and reality, in a given time and space, is a cultural construction. As the cultural base increases, the symbolic base is extended, so that complex cultures are characterized by both common and specialized symbol systems which correspond to the division of labor in society. Separate bodies of knowledge, or sciences, are the inevitable result of the tendency of symbols to coalesce in a coherent and logical order. The subject curriculum, rather than an artificial fragmentation, is natural and necessary because increments of knowledge are inherent in the process of labeling new objects and abstractions and thus creating new symbols.

In accordance with these postulates, the task of the curriculum builder is to organize the symbol systems of a particular disciplines to facilitate the child's perception of reality. This conclusion is consistent with the structure of the discipline approach to curriculum organization and Vygotsky's position concerning the relation of language mastery and intellectual development and the psychic functions as mediational symbol processes. Consequently, school instruction in one subject is not isolated, but generalizes to other subjects.

Relation of subject matter organization to the parent social science.

If there are theoretical advantages in the organization of subject matter according to a particular discipline, there is also a practical advantage: it offers a direct means to elicit the cooperation of the academic specialist.

Multidisciplinary or interdisciplinary efforts inevitably involve a considerable amount of definitional limitation to prevent overlap, since no discipline is so restricted in its content that it precludes overlap with other fields. Consequently, multidisciplinary efforts which involve academicians are frequently inefficient because it requires the scholar in a given field to place arbitrary limitations on his field of inquiry. In constructing public school curricula, the usual solution is to have the selection of content made by social science educators, with the academician merely serving as a consultant.

If the development of new content oriented curricula are to actually involve the subject matter specialist, it is necessary to provide a working framework compatible to their interest. The single discipline approach facilitates cooperation between the academic specialist and the social science educator in a common curriculum effort.

Curriculum. The statement of the problem and the rationale indicates that the Anthropology Curriculum Project set out to construct, in a deliberate and positive manner, a different type of social studies material for use in the elementary school. In taking the subject matter approach, the Anthropology Curriculum Project turned its back on a number of popular conventions in elementary social studies.



The following comparison seeks to indicate how the Anthropology Curriculum Project saw its curriculum development as being different from early 1960 social studies curricula:

Early 1960  
Social Studies Curricula

Primary objective relates to development of citizenship

General objectives equivalent to all learning

Vertical organization follows model of expanding community

Horizontal organization follows a fused curriculum which blurs the taxonomic and conceptual identity of parent discipline

Selection of material is alleged to represent the psychological interests of children

Factural contemporaneity over-emphasized with neglect of categorization

Rudimentary problem solving or pseudo-inductive approaches with heavy activity emphasis

Much use of stories or trips in which process relations and data base is obscured

Control of vocabulary which reduces teaching of social science concepts

Anthropology Curriculum Project

Primary objective relates to the acquisition of knowledge

Objectives specific to the discipline of anthropology

Vertical organization follows the logical development of concepts from anthropology

No horizontal organization, since only one discipline used. Theory, however, could maintain identity of separate disciplines, using cross discipline concepts to provide thematic unity.

Selection of material is based on the logical sequencing of concepts with prototypic ethnographic data

Analytic categories emphasized for cross cultural comparison; folk and modern cultures utilized

Emphasis on scientific description and explanation; techniques of anthropological research explicitly taught

Simple, attractively written ethnographies in which the anthropology concepts and facts are made explicit

Abstract concepts are taught explicitly; anthropological terminology introduced and used at earliest grade levels.

Early 1960  
Social Studies Curricula

Evaluation expressed in subjective, attitudinal terms

Child oriented, with rationale in developmental psychology

Anthropology Curriculum Project

Evaluation in measureable increments of cognitive knowledge expressed in abstract symbols

Knowledge oriented, with rationale in learning psychology

The delineation of characteristics in a dichotomous system naturally leads to the statement of polar differences and does not permit an identification of the areas of overlap which inevitably exist. Six years have elapsed since this original statement of differences was developed. It nevertheless remains a useful outline of the type of curriculum the Anthropology Curriculum Project set out to develop.

Meeting the problem of lack of content. The problem of elementary social studies instruction was defined as lack of substantive content from the social sciences. The Anthropology Curriculum Project used the discipline of a single social science---anthropology---as a conceptual frame of reference to develop structured content units for elementary social studies instruction.

### CHAPTER III

#### OBJECTIVES AND HYPOTHESES

The two major objectives of the Anthropology Curriculum Project were: development of structured units in anthropology and the evaluation of these units. A by-product of these two objectives was the training of graduate students in anthropology and social science education.

Objectives. The objective of the Project was to produce a series of instructional materials in anthropology for elementary grades one through seven, logically and systematically organized according to the discipline of anthropology, with progressive development centered on mastery of the fundamental concepts and their application.

The instructional materials consisted of two types---materials prepared for teacher guidance and direction, and materials for pupil study. In the pupil texts, the scientific concepts and terminology of anthropology were utilized, and content was not controlled by the use of conventional word-frequency lists. The complexity of explanation, however, was adjusted to simpler levels. The complete sequence, with the introduction of new concepts and the repetition of concepts on a higher level of scientific exposition, was designed to transmit a systematic body of anthropological knowledge and methods of anthropological analysis.

Hypotheses. The major hypothesis, implicit in the project rationale, was that student achievement in a structured subject approach would result in greater increments in learning than a fused, traditional curriculum. This was a non-researchable hypothesis, since it was not the objective to

the project to prepare subject versus fused types of instructional material in anthropology or to construct year courses of study based on alternatives of fused and subject organization. The objective of the Project was simply to prepare units in anthropology which could be used as part of elementary social studies. Anthropology had been largely restricted to college level instruction. Significant increments of pupil knowledge of anthropology would demonstrate how the application of single discipline concepts might be used to increase the substantive content of elementary social studies.

The three major hypotheses of the project, stated in a positive form, were:

1. There is a statistically significant increment in knowledge of anthropology in a post test in anthropology after instruction compared to pre-test performance.
2. There is a statistically significant difference in student achievement in anthropology, as measured by project developed achievements tests, related to level of teacher preparation.
3. There is a statistically significant difference in student achievement in social studies, as measured by the STEP test, intermediate form, related to preparation of teachers in anthropology.

Other sub-hypotheses of student achievement in anthropology related to age of teacher, level of certification, academic background, and student abilities as measured by the California Reading Test were derived and tested.

Hypothesis 1 concerned the problem of the project and the rationale selected for its solution---increased content learning and the suitability of the single discipline approach.

Hypothesis 2 was designed to examine the usability of the instructional material, independent of the level of teacher preparation.

Hypothesis 3 permitted an examination of the impact on training in anthropology on achievement in social studies as measured by a standardized test.

As the project matured, other questions were asked relating to grade placement suitability, inductive and deductive teaching methods, conventional and programmed instruction, use by disadvantaged learners, and relationship of anthropological knowledge to change in attitude.

## CHAPTER IV

## PROCEDURES

This chapter describes procedures relating to material development, teacher selection and training, evaluation, and dissemination.

Material development. Content development involved an established sequence, based upon a concept-topic approach to curriculum selection. The first step was the identification of the major concepts of anthropology (Publication 1). The concepts were submitted to a panel of national consultants (Table 4.1). Suggestions were made concerning priority of treatment and emphasis, but there was no consensus. The consultants recommendations were thus interpreted as advisory, and the project staff made its own selection of topics to fit a spiral cycle, with the assistance of local consultants (Table 4.1).

Table 4.1

National Consultants in Anthropology  
and Local Consultants in Education

National:

Dr. Paul Bohannon  
Northwestern University

Dr. Jesse D. Jennings  
University of Utah

Dr. Asael T. Hansen  
University of Alabama

Dr. Charles H. Lange  
Southern Illinois University

Dr. Frederick S. Hulse  
University of Arizona

Dr. Thomas A. Sebeok  
Indiana University

Local:

Mrs. Miriam Clum  
Clarke County Schools

Mrs. Jeannette Moon  
Atlanta Public Schools

Dr. Ruby H. Crowe  
Fulton County Schools

Originally, it was thought that the concepts of anthropology might constitute a hierarchical complexity, which would constitute the basis for a psychological as well as logical learning sequence. Attempts to implement this approach proved futile, and it was concluded that the matter of age-grade complexity was not inherent in the concept but in the complexity of explanatory and illustrative material.

It was therefore decided to initiate the work with the concept of culture. A spiral design of presenting anthropological concepts descriptively on the primary level with more theoretical explanation on the intermediate level was adopted. The eventual sequencing of material took the following form:

Level 1-4 - Concept of Culture

1. Ethnographic descriptions of three cultures
4. Explanation of cultural universal, enculturation, cultural dynamics

Level 2-5 - Development of Man and His Culture

2. New World Prehistory
5. Old World Prehistory

Level 3-6 - Cultural Change

3. Types of Cultural Change
6. Explanations of Cultural Change

Level 7 - Recapitulation of Concept of Culture

- Life Cycle
- Case Studies of the Life Cycle

Other units were developed as the opportunity arose, dealing with language, social control (political anthropology), the urban community, and applied anthropology (race, caste, and prejudice). However, the original curriculum sequence was restricted to Grades 1-7. The sequence is merely a logical sequence designed to emphasize the major concepts of anthropology.

After a grade topic was identified, an analytical outline, with suggested ethnographic illustrations, was compiled. The outline was compared with the original list of anthropology concepts and, by a process of inclusion and exclusion, a final writing outline was developed. The writing outline included two types of concepts and illustrations: those intended solely as background information for the teacher, and those designed both for teachers and pupils. The pupil outline, embedded in the master outline, subsequently served as the writing guide for the preparation of the pupil text.

The first material written was the teacher essay. The teacher essay was designed to provide the teacher with the minimum information necessary to interpret the less detailed pupil information in a broader anthropological context. Writing of the teacher essays, allocated to graduate students in anthropology on the basis of the master outline, was supervised by Co-Director Wildrid C. Bailey, Professor of Anthropology. The teacher essays were subsequently critiqued by members of the project staff, and revised when necessary. Every effort was made to insure the anthropological accuracy of the teacher essays.

After agreement on the text of the teacher essays, the teacher essays were used to write the pupil text, in accordance with the previously determined outline. Writing of the pupil texts were generally undertaken by education members of the staff. Drafts of the pupil text were then submitted to the anthropology members of the staff for critiquing in terms of anthropological accuracy. In this way it was hoped to provide substantive simplified anthropology units for elementary instruction.



Preparation of the pupil texts, however, not only involved writing of textual material but also illustration. A simple line drawing technique in black and white was utilized. Black and white illustrations were used for two reasons---economy, and research in media which indicated no learning advantage from colored pictures, except where color discrimination was essential to the learning task. A major difficulty in drawings was finding artists who could illustrate. Supervision of illustrations and related media work was directed by Juanita Skelton, media specialist.

After writing of the teacher essays and the pupil text, three other writing tasks remained. These included preparation of the teacher guide and the pupil guide under the supervision of Dr. Oscar Jarvis, a curriculum specialist, and preparation of the anthropology achievement tests under the supervision of the measurement specialists, Dr. Warren Findley and later Dr. Albert J. Kingston.

The teacher guide contained suggestions for teaching procedures, emphasized major concepts and lesson tasks, provided vocabulary lists and review questions, outlined suggested classroom activities, and provided bibliographies of films, pictures, and books if teachers wished to supplement the unit with teacher selected materials. The teaching unit, however, consisted of the minimum materials needed for developing the anthropological concepts.

The pupil guides contained such study helps as vocabulary definitions, review questions, and suggested activities.

The achievement tests were content valid tests based on the pupil material. A pool of test items was prepared, and reviewed for anthropological accuracy by the anthropologists and measurement efficacy by

the measurement specialist. After pilot testing, tests were revised to improve content validity and reliability.

The teaching package of a unit thus consisted generally of the following materials: teacher essay, pupil text, teacher guide, pupil guide, and unit tests.

A list of material developed by the project is given in Table 4.2.

Table 4.2

## Materials Developed by the Anthropology Curriculum Project

(unit theme)					
Publication Number	Date	Title	Discription	Grade Level	Remarks
1	1965	Outline of Basic Concepts	teacher background material, mimeographed, 6 pages	1 and 4	
2	1965	Teacher Guide, Grade One	objectives, pupil activities, vocabulary, mimeographed, 40 pages	1	
3-4-5	1965	Teacher Ethnographies	The Arunta, Kazak, American, mimeographed, 69 pages	1 and 4	
6	1965	The Arunta	pupil picture book, printed, 16 pages	1 and 4	revised-1968
7	1965	The Kazak	pupil picture book, printed, 17 pages	1 and 4	revised-1968
6-7R	1968	The Arunta, Kazak, American	pupil picture book, line drawings, and simple captions, printed, 52 pages	1 and 4	
8	1966	Comparative Cultures Worksheet	expendable material for students, mimeographed, 11 pages	4	discontinued
9	1965	Test Form 1A	pretest, 15 picture items, printed	1	revised-1966
9	1966	Test Form 1AR	pretest, 21 picture items, printed	1	revised-1968
10	1965	Test Form 1B	posttest, 15 picture items, printed	1	revised-1966
10	1966	Test Form 1BR	posttest, 21 picture items, printed	1	revised-1968
11	1965	Teacher Essay: How We Study People	mimeographed, 5 pages	1 and 4	

Table 4.2 (continued)

(unit theme)	Publication Number	Date	Title	Description	Grade Level	Remarks
	12	1965	Teacher Log	opened ended format for teacher's daily reaction to the materials in 5 categories, topical daily reaction sheets	1 and 4	revised-1965
	12A	1965	Teacher Log	opened ended format for teacher's daily reaction to the materials in 5 categories, topical daily reaction sheets	1 and 4	
	13-14-15	1965	Teacher Background Material	enculturation, cultural variation cultural dynamics, mimeographed, 30 pages	4	
	16	1965	The Concept of Culture	expository pupil text, printed, 54 pages	4	
	17	1965	Pupil Guide, Grade Four	study helps, questions, vocabulary printed, 26 pages	4	
	18	1965	Teacher Guide, Grade Four	objectives, vocabulary, pupil activities, mimeographed, 55 pages	4	
	19	1965	Test Form 4A	pretest, 30 picture and reading items, printed	4	revised-1966
	19	1965	Test Form 4AR	pretest, 35 picture and reading items, printed	4	revised-1968

Table 4.2 (continued)

(unit theme)					
Publication Number	Date	Title	Description	Grade Level	Remarks
20	1965	Test Form 4B	posttest, 30 picture and reading items, printed	4	revised-1966
20	1966	Test Form 4BR	posttest, 35 picture and reading items, printed	4	revised-1968
21	1966	Test Form 5A	pretest, 50 items, printed	5	revised-1968
22	1966	Test Form 5B	posttest, 50 items, printed	5	revised-1968
23	1966	Pupil Guide, Grade Five	study helps, questions, glossary, completion sentence study exercises, printed, 50 pages	5	
24	1966	Teacher Essay: Old World Prehistory	expository material for teacher background reading, mimeographed, 75 pages	5	
25	1966	Teacher Guide, Grade Five	objectives, analysis, activities, bibliography, glossary, mimeographed, 55 pages	5	
26	1966	Test Form 2A	pretest, 30 picture items, printed	2	revised-1968
27	1966	Test Form 2B	posttest, 30 picture items, printed	2	revised-1968
28	1966	New World Prehistory	illustrated text, printed, 98 pages	2	
29	1966	Teacher Essay: New World Prehistory	expository material for teacher background reading, mimeographed, 53 pages	2	

Table 4.2. (continued)

(unit theme)					
Publication Number	Date	Title	Description	Grade Level	Remarks
30	1966	Teacher Guide, Grade Two	objectives, analysis, activities, bibliography, glossary, mimeographed, 38 pages	2	
31	1966	Old World Prehistory	expository pupil text, illustrated, printed, 77 pages	5	
32	1966	Teacher Log	open ended teacher reaction sheets for grades 2 and 5	2 and 5	
33	1966	Pupil Guide, Grade Two	study helps, questions, glossary, completion sentence study exercises, printed, 52 pages	2	
34	1966	Answer Sheet	for use with 5A and 5B, 60 items, printed	5	
35	1966	Bibliography for <u>Cultural Change</u>	mimeographed bibliography	3 and 6	
36	1969	Cultural Change	teacher background material, mimeographed, 146 pages	3 and 6	student materials in preparation
37a	1967	Archeological Methods	programmed text, mimeographed, 93 pages	5	

Table 4.2 (continued)

(unit theme)		Publication Number	Date	Title	Description	Grade Level	Remarks
37b	1967			Pronunciation Guide	accompanies programmed text, mimeographed, 26 pages	5	
37c	1967			Test, Archeological Methods	pre- and posttest, mimeographed, 50 items	5	
37d	1967			Pronunciation Tape	used with pronunciation guide	5	
38	1967			How We Learn About the Past	film 16 mm. 28 minutes, color	2 and 5	applicable for all levels
40	1968			Test Form 1	composite 30 item picture test, printed	K and 1	
41	1968			Test Form 2	composite 30 item picture test, printed	2	
42	1968			Test Form 4	composite 50 item reading and picture test, printed, 10 optional items	4	
43	1968			Test Form 5	composite 50 item reading and picture test, printed	5	
(LANGUAGE)							
44	1968			Language	expository pupil text, 46 pages, printed	upper elem.	

Table 4.2 (continued)

(unit theme)					
Publication Number	Date	Title	Description	Grade Level	Remarks
45	1968	Language: Anthrpology and Communication	teacher background materials	upper elem.	
46	1968	Political Anthropology	expository student text, printed, 160 pages	junior high	developed for Atlanta and Fulton Schs.
47	1968	Sounds of Language	30 minute record for language	upper elem.	
47a	1968	Record Narration Guide	companion publication for Sounds of Language, printed, 6 pages	upper elem.	
49	1969	Life Cycle	expository, illustrated pupil text, printed, 110 pages	junior high & upper elem.	
49a	1969	Life Cycle	teacher background material, mimeographed, 122 pages	junior high & upper elem.	
49b	1969	Test Form 7	50 item multiply choice test, printed	junior high & upper elem.	



Table 4.2. (continued)

(unit theme)					
Publication Number	Date	Title	Description	Grade Level	Remarks
51	1968	Concept of Culture: An Introductory Unit	Teacher material, daily lesson outlines, suggested activities, printed, 79 pages	K and 1	
51a	1968	Concept of Culture: An Introductory Unit	student text and activity book, printed, 57 pages	K and 1	
52	1968	The City	pictorial text	junior & high School	Not duplicated
70-1	1970	Race, Caste, and Prejudice	expository text, printed 165 pages	high school	
70-2	1970	Student Handbook for Race, Caste, and Prejudice	activities, review questions, analytical questions, glossary, printed, 120 pages	high school	
Un-numbered Publications					
	1968	The Concept of Culture	teachers guide, inductive approach, mimeographed, 33 pages	1 and 4	not distributed
	1968	The Kazak	student text, inductive approach, mimeographed, 37 pages	1 and 4	not distributed

Table 4.2 (continued)

Unit theme)				
Publication Number	Date	Title	Description	Grade Level Remarks
Non-numbered Publications				
	1968	The Arunta	student text, inductive approach, mimeographed, 33 pages	1 and 4 not distributed
	1968	Political Anthropology	student text, illustrated, printed 160 pages	junior & high school developed with Atlanta & Fulton County School
	1968	Urban Community	student text, illustrated, printed 137 pages	junior & high school developed with Atlanta & Fulton County School
General Information Series				
1	1964	Teaching Anthropology in the Elementary School Social Studies, by W. C. Bailey		
2	1965	Development of Sequential Anthropology for Grades 1-7, by W. C. Bailey		
3	1965	Concept of Culture: Curriculum for First and Fourth Grades, by W. C. Bailey and I. J. Clune		
4	1965	Panel Report on the Anthropology Curriculum Project, National Council of Social Studies, Miami		
5	1967	Panel Report on the Anthropology Curriculum Project, American Educational Research Association, New York		
6	1968	Evaluation in the Anthropology Curriculum Project, National Council for the Social Studies, Washington		
7	1970	The Effectiveness of Teacher Training as Measured by Pupil Performance, National Council for the Social Studies, New York		

Teacher selection. Hypothesis 2 related specifically to the level of teacher training and pupil performance in anthropology. From the outset, the project assumed that few elementary teachers had, or would have, training in anthropology. If this were the case, a practical test of the usability of project materials would be the extent to which pupils would perform at educationally significant levels on the anthropology achievement tests when taught by untrained teachers as compared with pupils taught by trained teachers. Trained teacher was defined as an elementary teacher who attended the special six week institute in anthropology conducted by the Anthropology Curriculum Project; untrained teacher was defined as any elementary teacher who agreed to teach the material but who did not have the special institute training in the subject matter of anthropology and project material. To provide for some control over socio-economic characteristics of experimental and control populations, it was decided that control, i.e., untrained teachers, would be selected from the same school as the trained teachers.

Schools and teachers were selected in the following manner. Curriculum directors in thirty Georgia school systems were contacted. School systems included large and small urban, rural, suburban, and ranged in size from some of the largest in the state to some of the smallest. From this list negotiations were concluded which resulted in the identification of fourteen schools which agreed to participate in a longitudinal project. In the first year they would try to send teachers from grades 1 and 4; in the second, from grades 2 and 5; in the third, from 3 and 6, and in the fourth, from 7 and possibly 8. Instruction would be in intact classes, as pupils were assigned by the school system, and it would not be expected that the school

would reassign pupils in subsequent years on the basis of prior instruction in anthropology. Furthermore, loss of trained teachers was anticipated, and a school could maintain its full level of project participation by simply substituting an untrained teacher, at its option.

From the outset, it was impossible to meet the objective of fourteen experimental first grade and fourteen experimental fourth grade teachers. The full quota could not be obtained, teachers resigned from the institute, or were reassigned after completion of training. However, in the first year pilot testing there were twelve trained first grade teachers and thirteen trained fourth grade teachers.

Teachers selected for the project were all volunteers. Years of teaching experience ranged from none to over twenty. Level of teacher certification ranged from two-year emergency to sixth-year specialist. Over one-third of the teachers, and consequently the pupil population, was black at a time when integration was token. Rating of teacher effectiveness by principals in informal feedback ranged from poor to excellent. Several of the trained teachers failed to make satisfactory grades on their anthropology courses but, for reasons of project management, were assigned an audit rather than failing grade. The experimental, i.e., trained teachers did not constitute a homogeneous group of master teachers, but might be regarded as representative of the average teachers in the schools from which they came. The control, i.e., untrained teacher had similar characteristics, but they were not paired with the trained teachers.

Teacher training. Training of the trained teachers consisted of a six week-institute, divided into "knowledge" and "application" components.

The untrained teacher received no training. He was merely sent the unit material at the same time the material was mailed to the trained teacher--- a few days before the unit was initiated. The untrained teacher was expected to establish his own cognitive frame of reference, interpret how the materials might be used, and to develop his own classroom procedures. Neither trained nor untrained teacher received inservice training during the period of unit teaching. This was done under the assumption that this was their normal condition of teaching, and inservice assistance would contaminate any inferences drawn on usability of materials by untrained teachers.

The knowledge component of the project institute was under the direction of Co-Director Wilfrid C. Bailey, Professor of Anthropology. Two courses in anthropology were given, with 90 hours of classroom instruction leading to ten hours of college credit.

The anthropology training consisted of a general course and a unit specific course. The general course was a survey of anthropology, similar to the standard introductory college course in anthropology. The unit specific course related to the topic of the new unit, such as "Cultural Anthropology" for units 1 and 4 and "Cultural Change" for units 3 and 6. All anthropology courses were taught by staff of the anthropology department, but the particular needs of the teacher-students were considered. For example, the projected unit outline was available to both instructor and teachers, and an attempt was made to make the subject matter of the anthropology courses relevant to the prospective teaching emphasis.

The application part of the training was under the direction of

Oscar Jarvis,<sup>1</sup> a specialist in elementary curriculum and teaching. In the workshop, scheduled for two hours a day for a total of 48 hours, students used the projected unit outline to identify and select significant concepts; review and annotate related teaching films, filmstrips, books, and pictures; prepare suggested activities; and simulate various kinds of teaching. Many teacher suggestions were incorporated into the subsequent teaching guide.

The trained teachers did not have use of the pupil texts, which were generally being developed at the time the Institute was held. However, the trained teachers received both training in anthropology and had participated in the planning of the teacher guides and classroom procedures. In contrast, the untrained teacher had to begin with no prior background in anthropology or the unit.

Evaluation. The project attempted to carry on evaluation based on two types of evidence: teacher feedback and pupil feedback.

Teacher feedback was both written and unwritten, structured and semi-structured. Written structured feedback consisted of a forced response inventory scale completed by teachers at the time of registration for the feedback conference. Written, semi-structured feedback consisted of the daily teacher log filled out by the teachers on a daily basis concurrent with teaching the lesson, and later modified to present a general end-of-unit summary.

Unwritten, semi-structured feedback consisted of the annual, one-day feedback conference held after teaching the unit. The feedback conference provided an opportunity for the teachers to meet together, share ideas

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<sup>1</sup>Dr. Jarvis is now Director of Curriculum and Instruction, University of Texas, El Paso.

about teaching anthropology, ask questions for future application, and make recommendations for project improvement. Both trained and untrained teachers participated equally in all teacher feedback. An agenda was always prepared with some structure so that the project staff could elicit feedback on certain types of problems. The feedback conference thus served in the dual capacity of providing information useful to the staff, and providing an in-service contact, however, tenuous, for those teachers who remained in the project a subsequent year.

The results of the teacher feedback and evaluation are described in Chapter V.

Pupil feedback consisted of two types---pupil achievement and appraisal of material based on open-ended questionnaires. The major pupil feedback was on the construction and use of unit achievement tests to measure achievement in anthropology. Originally, two forms were developed at each level, Form A and Form B, which could be administered to alternate groups as pre- and post-tests. Efforts to obtain form equivalency as measured by pupil achievement was never obtained, even after the third revision on Forms 1A and 1B and Forms 4A and 4B. As a result, a single form was devised. In development for later units, only a single form was constructed.

Some classroom observation was made by project staff, usually at the invitation of a teacher. Lack of manpower precluded observation of variables relating to teacher behavior in the classroom. However, certain results are noted in the chapter on teacher evaluation.

Dissemination. From the outset, the project made the decision to make its units available to any interested user, without waiting until

the termination of the project.

In addition to making the units available, the project attempted to disseminate information about the project through articles in professional and popular journals and participation of project staff in national and local educational and academic meetings.

The results of dissemination efforts were systematically studied for the period 1965-1968 by Mr. Robert Richburg. A summarization of his study is given in Chapter VII. Dissemination continues through the same procedures previously described. No contract has been made with a commercial publisher for the distribution of material. Two reasons may account for the failure to attract commercial marketing and distribution: the highly cognitive content of the materials, which is contrary to the common practice of limiting content by rigid vocabulary control, and the supplementary nature of the materials. Publishers find it more profitable, from the standpoint of textbook adoptions, to publish material which is in a sequence and a packaged year course of study. The pattern of textbook approval in states largely influences publishers marketing decisions, not research which shows the feasibility of curriculum alternatives. This is one reason why there continues to be such a gap between project curriculum innovation, and changes in the schools. No publisher, in a market economy, can be expected to assume the burden and the cost of publishing new materials. "New" materials which have been published have been edited and rearranged to conform to market needs as perceived by publishers.

Examination sets and classroom sets of Anthropology Project material are available on direct order from the Project.



## CHAPTER V

## INFORMAL EVALUATION: TEACHER AND PUPIL FEEDBACK

The purpose of teacher and pupil feedback was to collect information to revise and improve the teaching of the units developed by the project staff. This step in the development cycle was analogous to, but not identical with, Scriven's subsequent conceptualization of formative evaluation.

Teacher feedback provided the project with some gross suggestions for revision. On the whole, however, informal evaluation, teacher and pupil, did not provide the project with the needed information. In retrospect, a number of reasons accounted for this deficiency. One reason was the over-ambitious time schedule, which required both production, pilot-testing, revision, and field testing in a single year. The project was never able to overcome this timing deficit, notwithstanding various attempts to apply PERT-like procedures. The major reason, however, was an imbalance between the allocation of project resources for development and for evaluation, an imbalance which reflected both applicant and USOE ignorance of evaluation costs.

## WRITTEN FEEDBACK

Teacher Log. Two types of teacher logs were utilized, a Daily Log in 1965 (Publication No. 12, March 1965) and a Topic Log in 1966 (Publication No. 12A, Revised, September 1965). In the Daily Log, a reaction page was provided for each lesson, in accordance with the daily suggested

lesson sequence. In the Topic log, a reaction page was provided for each topic rather than for each lesson.

The Daily Log asked for both favorable and unfavorable teacher reactions in an open-ended format to five topics: teacher materials, pupil material, use of material in teaching the lesson, pupil learning of material, and general impression of material. The project was unable to devise an adequate synthesis system to cope with the diversity and contradiction of reactions in the daily log. Teachers at the 1965 Feedback Conference also recommended change because they found the daily log repetitious and tiresome, and suggested limiting teacher appraisal to the four or five major topics or divisions covered in the unit. The revised topic log retained the five reporting themes of the daily log, but added two responses at the suggestion of teachers. One of these was a resume of activities or techniques used in teaching the topic; the second was a description of distinctive lesson plans.

Attempts to utilize the input from teacher logs were, on the whole, disappointing, whether the logs were organized by the daily lesson or topic plan. Three reasons account for this lack of success.

In the first place, the teacher log fits the response mode of individual testimony, whether the response is favorable or unfavorable. Only a limited number of responses fell into a sufficiently consistent pattern for purposes of generalization, such as vocabulary difficulty and desire for color photographs rather than black and white drawings. At the same time, experience with teacher reactions at the Feedback Conference (See Feedback Conference, p. 58) seemed to indicate that revisions based on one

year trial might be unwise, since some of the criticisms, e.g., vocabulary loading and lack of color pictures, loomed of less significance as teachers gained experience with the materials. Individual responses were frequently hard to interpret, since the context in which the comment was made was invariably lacking.

A second difficulty with the testimonial form was the contradictory nature of some of the comments. A frequent criticism was the need for more time to teach the unit and the need for more material. If there was too much to teach, additional material would not necessarily solve the problem of the teaching load. A consistent recommendation, however, was the need for AV material, by which respondents really meant films or filmstrips in color. The project developed a sound film "Archeological Methodology" by the simple expedient of resource reallocation, but the proposal for supplementary finances to develop unit specific filmstrips was not funded by the U. S. Office of Education. The original proposal did not include budgeting for films and filmstrips, and the lack of finances precluded the development of these materials. Even where attempts were made to carry out teacher suggestions, such as improvement of the first grade picture books, resources available on the University campus to bring about the needed improvements were not available.

A third difficulty in the use of the teacher logs was an inadequate conceptualization of the feedback process in curriculum development. The teacher logs were useful in giving an overall impression or reaction to the question "What do we think about X?" but were inadequate to help solve the problem "What do we need to do to improve X?" This type of answer can be more usefully answered, it is thought, by a combination of

planned observation and participation of a few teachers in representative situations. The teacher log, supplemented by the feedback conference, was inadequate for the purposes intended.

In general, it may be said that teachers were generally pleased with the way pupils responded to the unit, and found that pupils were able to interact favorably with the materials notwithstanding their initial misgivings. Generally, however, the concept (vocabulary) loading was regarded as troublesome, even after experience.

Teacher Evaluation Scale. One of the teacher evaluation devices was a five-scale teacher rating device for each piece of material developed by the project. The rating rubrics covered the four concepts of teacher usability, pupil interest, pupil comprehension, and teacher comprehension. This scale was subsequently incorporated into the Revised Teacher Log, Publication 12A, for feedback by out-of-state teachers. The mean of these ratings on any of the four concepts generally ranged from a low of 3.0 (average) to less than 1.0 (very good). If these ratings were converted to an A-F scale, the materials rated generally C or B in terms of usability, pupil interest, pupil comprehension, and teacher comprehension. Reports of pupil interest and liking of the unit were generally less on the evaluation scale than in the free responses given in the logs. The teacher evaluation scale did not prove to be a useful means to bring about improvement in unit development, and its use was discontinued after 1966 field testing.

Teacher Observation Schedule. Direct observation of teacher and pupil use of materials was not part of the original research design. In 1967, however, an observation schedule was developed to provide for minimum uniform coverage of observations and a sequence of observations

scheduled with the twenty-two experimental and control teachers, Grades 1, 2, 4, and 5, in the Athens area. It was difficult for the anthropologists and other staff members to visit a classroom for observation. Normally the teacher would turn the class over to the visitor to serve as a resource person. Several visits would have been needed to each classroom to accustom the students and teacher to the presence of a classroom observer. The frequency of the observations was too limited to permit the development of useful generalizations relating to the improvement of materials or teacher training.

Examples of good and poor teaching were found in both experimental and control classes, and teacher mispronunciation of words was common. Projections for the development of pronunciation tapes were not carried out, except in connection with materials specially developed for the programed text in archeological methods and political anthropology.

Pupil Feedback. The most frequent feedback from students was in the form of anecdotal reports of teachers and statements of pupils on visits. Sometimes letters were written under teacher aegis, always favorable. The impression given in these pupil reports was, as might be expected, uniformly favorable. But from the frequent comments that "I want to be an archeologist" or "I want to be an anthropologist" it was evident that the study of the material served to open up new intellectual horizons and areas of interest.

Feedback Conference. The principal means for gathering input from teachers relating to their experiences with the material was the annual feedback conference, a two day session in which both experimental and control teachers gave their reactions to teaching the material.

Some of the suggestions from the feedback conferences, and what the project attempted to do to carry out these recommendations, are discussed in the next sections.

Vocabulary. After the experience with Grade 1 and Grade 4 material, an attempt was made to reduce technical vocabulary in new materials. The first and fourth grade material was never rewritten, and the vocabulary level remained high. The K "Concept of Culture," developed in 1968 with the assistance of an experienced first grade project teacher, Miss Frances Emmons, might be regarded as a more reasonable first grade unit than the original unit. It was agreed that the chapter on cultural dynamics should be dropped from the fourth grade material, and the units for Grades 3 and 6 devoted to the theme of cultural change. However, teachers retained the chapter in the second year, and concluded that it was not as difficult for the children as they first thought. In fact, after the teachers had lived with the unit a second year their criticism of the vocabulary loading was substantially reduced: they had themselves assimilated the vocabulary to their classroom teaching, and had made adjustments (as suggested in the guide) in pupil expectancy.

Recommendations concerning vocabulary also related to the development of pronouncing tapes with an accompanying marked glossary. The project was never able to find a suitable method for the preparation of camera ready copy pronouncing glossaries, and the cost of printing the smaller number of teacher guides was prohibitive. The experience with the pronouncing tapes with the programed text, however, indicates that this would have been a valuable teaching aid, not only for the teacher, but also the pupils.

Illustrations. Teachers desired more realistic illustrations in color. The project did not have the resources to send an anthropologist-photographer on location (although this idea was discussed at various times) to take photographs, or to print in color. Georgia experimental and control classes were provided with back issues of the National Geographic which had Kazak, Arunta, and other ethnographic illustrations. Also, selected Life-Time publications were used to supplement the units on New World and Old World Prehistory.

Material provided the Georgia schools was listed in the teacher's guide, and could be obtained by out-of-state schools teaching the units.

An attempt was made to find an illustrator who could illustrate the materials in a more realistic fashion. A contract was made with an illustrator to redraw and expand the ethnographic picture book "Three Cultures: Arunta, Kazak, and American." The pictures were not finished in time to be useful for project revision, and, in view of the projected cost, were never duplicated. The project is continuing to investigate alternatives of making them available for school use.

Films. Two approaches were attempted---supplementary funding and re-allocation of project resources. In view of teacher demand for more colored visual material, a proposal was made in 1965 to the United States Office of Education for supplementary funding to prepare unit specific filmstrips, making use of any available commercial sources. The proposal was not funded.

The interest of a young photographer in education and media made it possible for the project to produce, at a relatively modest cost, one unit specific film "How We Learn About the Past" to accompany the chapter

Archeological Methodology in the Grade 2 and 5 units. This film had very favorable reception. Unfortunately, the producer lost interest in additional educational work with the project, and it was impossible to finance additional unit specific films with film contractors.

Artifacts from the culture. Teachers proposed that artifacts from the various cultures would make the study more interesting to the children. A feasibility study was made with respect to cost, use, and prospective sales of a cultural artifact package utilizing real artifacts of the Hopi Indians (Grade 2, The Hopi as a Case Study of the Formative Stage). Three conclusions resulted from this feasibility study: The Hopi artifacts were attractive to teachers and pupils. The amount of pupil learning about the Hopi as an illustration of the Formative Stage was not increased by the use of real artifacts. Schools would use the artifact kit if provided free of charge, but it would not be purchased as supplementary material.

In view of the fact that the project was concerned with the production of materials which would be economically useful, the artifact kit project was abandoned.

Reduction in number of pieces of material. Many teachers found the number of pieces of material---sometimes more than five---somewhat inconvenient, and recommended the consolidation of the materials into fewer pieces. Because of the expendable nature of the pupil workbooks, however, it was not feasible to consolidate the pupil workbook with the pupil text. Production scheduling made it difficult to implement the suggestion that the teacher guide be reduced to one comprehensive book containing essays, teaching suggestions, and pupil materials.



Changes in content and emphasis. In 1965, it was recommended that "Cultural Dynamics" be dropped from the fourth grade unit; in 1966, however, it was recommended that it be retained as part of the unit.

No consensus was ever reached with respect to the chapter on "Evolution" in the fifth grade unit. Some teachers omitted it; others taught it and thought it an important idea to communicate to young children, notwithstanding the fact that it evoked questions of Biblical explanations of first origins. Individual teacher objections rather than home objections appeared to be more important in determining unit use. Teachers were generally not enthusiastic about the "Fossil Man" chapter in the fifth grade unit, and apparently were never able to make this chapter come alive to their students. From experience with teaching anthropology to teachers, it might be observed that teachers in general show much less receptivity to physical anthropology than they do to cultural anthropology, and often react negatively to making associations between man's physical nature and cultural adaptations. Because of these reactions, teachers tended to emphasize archeological methodology and the Neolithic revolution and to slight the chapters on evolution and fossil man in the fifth grade material.

In the second grade material, teachers rated the case study of the Hopi more favorably than they did the survey of the five cultural stages of the pre-Columbian Indian. In general, it might be said that teachers preferred the ethnographic approach, and even where material was presented comparatively tended to handle the content from the standpoint of ethnographic description rather than comparative explanation. One reason may be the fact that the comparative approach requires the use of more

abstract concepts, whereas the ethnographic approach can be tied to be more concrete activities. Various ideas of teaching anthropology were invariably discussed at the feedback conferences, but it appears that teacher preference for an ethnographic approach and project preference for a comparative approach were never reconciled.

Conference Utility. The primary utility of the feedback conference was to provide an opportunity for teacher contact. In a longitudinal study, where teachers taught the same unit more than one year, the exchange of views about teaching anthropology was useful for maintaining teacher morale and providing some direct interchange with the project staff. Many of the recommendations of the teachers could not be implemented because they addressed themselves to visual materials. The general appraisal of the units, however, was favorable, and the teachers recommended the teaching of anthropology in the schools, both from the standpoint of content and of pupil interest.

## CHAPTER VI

## FORMAL EVALUATION: TESTING COGNITIVE OUTCOMES

Seven different types of evaluations were undertaken by the Anthropology Curriculum Project within the contract period, 1965-1969. An eighth type of evaluation, relating to change in attitude after instruction, was undertaken in 1970.<sup>1</sup> Other types of investigation are being continued, such as the arrangement of material using different types of organizers,<sup>2</sup> Carroll's mastery learning model,<sup>3</sup> and different programming techniques for teaching evolution.<sup>4</sup> This review is related to research completed during the contract period: Summaries of the studies are included in Appendix G.

The seven types of evaluations presented are: (1) Cognitive achievement within the premises of a single discipline approach and different teacher preparation; (2) Cognitive achievement by grade level holding the treatment variable constant; (3) Cognitive achievement varying treatment by conventional elementary methods and programmed instruction; (4) Cognitive achievement varying treatment by deductive and inductive methods and the relationship of teaching style as perceived by teachers and observers; (5) Cognitive

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<sup>1</sup>A technical report of this investigation is available: Milton Kleg, Race, Caste, and Prejudice: The Influence of Change in Knowledge on Change in Attitude, Publication 70-1 (Athens, Ga.: Anthropology Curriculum Project, University of Georgia, 1970).

<sup>2</sup>Elmer U. Clawson, in progress.

<sup>3</sup>W. George Gaines, available August, 1971.

<sup>4</sup>Robert Fishburne, Georgia Southern College, in progress. The evolution chapter parallels the second chapter in the pupil text, Development of Man and His Culture, Old World Prehistory, Publication 31, March 1966.

achievement for five-year olds using an adaptive oral unit; (6) Pupil judgments of interest and suitability; and (7) Processes of curriculum diffusion. The remainder of this paper will consist of a precis of the evaluation studies which have been undertaken.

Cognitive achievement. The original proposal envisioned one major type of evaluation: the suitability of the single discipline approach for instruction in anthropology and the measure of achievement in anthropology of children taught by teachers who had specific training in anthropology as compared with teachers untrained in anthropology.

Field tests of the Grade 1, 2, 4, and 5 units indicate the following. There was a significant increase in achievement in anthropology, as measured by a conceptually organized test of anthropological content, using different forms of a pretest and posttest. The results of these tests, conducted in Spring 1965 (Greene, 1965) and in Spring 1966 (Wash, 1966) indicate that the single discipline approach is suitable for young learners and that assumptions made concerning the unsuitability of teaching a structured discipline to elementary children reflect certain value premises concerning the organization of social studies material, not subject learnability.

In this connection it should be emphasized that the results of this type of testing do not, and cannot, answer the normative question whether material ought to be organized by separate disciplines for young learners; it merely answers the question affirmatively that young children can learn by this method.

In the original year of testing, two standardized tests were also used: The STEP social studies battery at the intermediate level for Grades

4 and 5; and the California Reading Test for Grades 2, 4, and 5. Using the STEP as a pre- and posttest, it was found that achievement in anthropology did not contribute to achievement on the STEP test. This results from the simple fact that the STEP test does not include anthropology items. Consequently, there was nothing the STEP test could measure in anthropology.

As was expected, a high score on the STEP pretest as well as a high reading score were positively correlated with achievement in anthropology. A high verbal facility, whether measured by a direct reading test or a social studies test is positively correlated with achievement in anthropology while such factors as race and sex are not positively correlated with achievement in anthropology (Greene, 1965).

Superficially, race appears to be correlated with achievement in anthropology, but inspection of reading performance of white and Negro children in the experimental sample shows that Negro children as a group are more disadvantaged readers than are white children. Where Negro children exceed white children in reading ability, they exceed white children in anthropology. Race is not a significant variable in learning anthropology, a finding consistent with all other studies which go behind race designation and ascertain actual reading ability and school achievement of Negro students.

The second question in this initial testing cycle is related to the achievement of pupils taught by elementary teachers who had no special training in anthropology, as compared with elementary teachers who received an intensive six week course in regular college anthropology equivalent to ten quarter hours credit. It was found that children

taught by the experimental teachers who attended the institute did not perform significantly higher than children taught by teachers untrained in anthropology (Greene, 1965; Wash, 1966).

In interpreting the results of the contribution of teacher training in anthropology to pupil achievement, it is important to bear in mind that the measures used were pupil tests, not tests of teacher knowledge of anthropology. These findings do not conclude that teachers who attended the anthropology institute knew as much about anthropology as the control teachers. In fact, at this point the Project does not know the difference in the knowledge of anthropology between experimental and control teachers. The purpose of the evaluation was to test pupil achievement, not teacher knowledge. As a matter of policy, it was decided that in a repetitive curriculum development project it was not judicious to test teachers, for reasons of project management and long term participation.

Empirical observation of teacher behavior and feedback from principals and supervisors tends to indicate that those teachers who were judged as effective elementary teachers were likewise effective in teaching the anthropology units, with or without training in anthropology. Teachers who were generally designated as ineffective were likewise ineffective in teaching anthropology. The mere addition of knowledge about anthropology did not result in greater teacher effectiveness as measured by pupil achievement.

This teacher training, from the standpoint of the project, indicated that the materials developed by the project were useable by regular teachers who had no special training. One of the fundamental premises of the project is that innovative materials ought to be useable by

regular teachers without special training. Pupil achievement together with positive teacher feedback from untrained as well as trained teachers indicates that the project materials are useful for classroom instruction.

In this connection, it is important to emphasize that teachers designated as experimentals and controls were not specially selected teachers. In training they ranged from the emergency, non-degree certificate level to sixth year for both experimentals and controls. Some were outstanding teachers, others mediocre. All were Georgia teachers in predominantly rural schools. If children and teachers on the lower end of the aptitude scale can use the anthropology materials, it is reasonable to infer that teachers and pupils from more advantaged school districts could perform at even higher levels. Experience has borne this assumption out, as exemplified by the Spring Mill Elementary School in Montgomery County, Maryland, a school using Georgia materials and a demonstration center in connection with the 1968 meeting of NCSS.

Differential cognitive achievement by grade level holding treatment constant. The writing of knowledge oriented material for young learners, organized and presented as a science, imposes a different problem from the writing of social science material about the home, school, and community utilizing basic reader vocabulary. To teach accurately any field of knowledge requires the use of the organizing and synthesizing concepts of the discipline.

A decision was made, therefore, to use the scientific terminology of anthropology and not be limited by conventional reading formulas. While an attempt was made to reduce the general concept load, technical explanation in anthropology brought about an increase in the level of general language used. The first unit written as a pupil text was the

fourth grade unit, Concept of Culture. Even as the unit went to press, before it was ever field tested, it was realized that the concept load was much too high particularly in view of the reduction of explanatory and repetitive material needed to fix the concepts.

To study the suitability of material by grade level and to ascertain differences in achievement by pupils at grade levels 4, 5, and 6, Potterfield, a trained teacher and project research assistant, taught one experimental class at each grade level, and a teacher untrained in anthropology also taught one control class at each grade level. The pertinent finding here is that grade level is not nearly as significant in learning the unit as was originally hypothesized. While fifth and sixth grade children tended to score higher before and after instruction than did the fourth grade children, the main effect of grade was not significant (Potterfield, 1966).

Why is it that very difficult material can be used over a span of several grades, with no major differences in learning resulting which can be attributed to grade level? The Potterfield study, together with observational feedback, seems to indicate that a three-year age span is not sufficient to differentiate in facility for language learning, where the new learning task is so specific that there is no opportunity for recall or transfer of previous learning. By the time children attain the fourth grade, they have acquired a facility for new concept learning and the two-year span to the sixth grade is not sufficiently great to differentiate in the rate at which new language is learned. Hence, measurement of anthropological achievement will not be significantly



greater by grade level, even though older children will have a slight advantage. It would, therefore, seem that the presentation of a new science and a new body of knowledge need not be as concerned with reading level as sometimes indicated.

This statement is not a recommendation that there should be no control over content. However, the great concern with restricting content by zealous vocabulary control may not be justified. After all, the concepts of a discipline are carried by the words applicable to that discipline. Moreover, pupils in any classroom do more than read. At any grade, there is a great deal of oral instruction, even without the formalities of a lecture. The pupil is not expected to obtain all his new understanding by independent reading.

Programmed instruction. To ascertain differences in achievement in anthropology taught by conventional methods and programmed instruction, Thomas (1967) developed a programmed unit in archeological methods paralleling the content of the narrative chapter in the fifth grade unit, "Old World Prehistory." Instead of using the regular fifth grade pretest and posttest, which contained only a small number of items drawn from the chapter on archeological methods, a special 50-item pretest and posttest was constructed. A control group of 144 fifth grade students were taught by conventional methods, and an experimental group of 176 students were taught by the programmed text. No significant differences between the treatment groups were found on the California Reading Test or the Anthropology pretest. Because of the relationship of reading to anthropology achievement, experimental and control students were assigned to three reading levels as follows: fourth grade and below, fourth through sixth, and seventh through eighth.

The posttest results indicated that there was no significant difference in achievement in anthropology of students taught by the programmed text and those taught by conventional methods. The time assigned to conventional instruction was 180 minutes. The average time required to complete the programmed text was 91 minutes with a standard deviation of 27 minutes. From the standpoint of economy in time, it therefore appears that programmed instruction in anthropology, as far as can be measured by paper and pencil test, is an efficient way of teaching. The so-called reinforcing activities of conventional instruction apparently do not add increments to learning which are susceptible to measurement by written testing procedures.

An analysis of results indicated that scores of students conventionally taught were more homogeneous than the scores of experimental students. Regular classroom instruction thus appears to hold back the very able students and to bring up the bottom students. As was anticipated, the better the reading level, the better the performance of both experimental and control groups. A surprising finding, however, is that poor readers are no more disadvantaged using a programmed text than they are in regular instruction. Using reading scores as a criterion score, poor readers perform just as well using the programmed text, which is entirely dependent on written material with no oral teaching involved, as they do when exposed to conventional classroom teaching.

Cognitive achievement by deductive and inductive methods of teaching. Myers (1968) conducted a study which involved the preparation of anthropology materials inductively organized and the comparison of pupil achievement taught by control and freedom-oriented teachers as measured by Bruner

Studies of Attitude Patterns, Interview Form III. The results of his investigation, because of difficulties in maintaining observational control both in Georgia and out-of-state classes, may not be regarded as definitive. However, his study indicates the following:

1. There was no significant difference between the achievement of classes who used the new inductive as compared with the regular Anthropology Project deductive materials.

2. There was no significant difference between the achievement of pupils whose teachers were control-oriented and those who were freedom-oriented. The five most control-oriented teachers had pupil achievements excelling the five most freedom-oriented teachers. However, this is probably an effect of the measurement instrument used, the regular Anthropology Curriculum Project test.

3. There was no significant difference between the achievement of pupils whose teachers performed compatible roles, i.e., control-inductive did not contribute to better performance than control-deductive nor freedom-deductive show any superiority over freedom-inductive.

The major contribution of Myers' study is to demonstrate the real difficulty in holding constant either a methodology of material organization or a methodology of teaching. Notwithstanding distinctions based on deductive-inductive strategies, it is apparent that most teachers use a variety of teaching methods, and that the actual method at a given time depends upon the learning task and pupil-teacher and pupil-pupil interaction at a given time. The study does not indicate any superiority in methodology or teacher orientation; nevertheless, given the knowledge oriented nature of the Anthropology Project material, pupils taught by Project procedures show up somewhat more favorably on Project tests. In this respect it is important to emphasize that where a particular instrument has been developed to measure particular outcomes, these tests are not suitable as measures for a different product, such as divergent thinking.

An adaptive unit "Concept of Culture" for kindergarten. Blackwood, Hunt, and Emmons adapted the Grade 1 unit "Concept of Culture" to the kindergarten level. It differs primarily from the Grade 1 unit in consisting of a series of daily oral lesson plans, prepared in the form of a script which the teacher may modify as needed. The test used to measure achievement was the regular first grade Anthropology Curriculum Project test. This study therefore is in many ways akin to the Potterfield study. Pre-primary subjects included 200 children about half of whom were disadvantaged children in a Title I kindergarten; other children came from conventional middle class backgrounds.

No difference in achievement was found between sex, chronological age, and socio-economic status. There was, however, a significant correlation of anthropology achievement with Stanford-Binet Intelligence Test scores and Metropolitan Achievement Test scores.

Significant gains (at the .01 level) were made by pre-primary children as a result of instruction in anthropology, after correction for guessing errors (Hunt, 1969). The Hunt study, like that of Potterfield, indicates that material in the Anthropology Curriculum Project can be taught at different levels. It also indicates, along with other studies, that pre-primary children ages 4-6 can handle sophisticated concepts presented from the discipline of anthropology.

Hunt included in her study a control group which did not have teaching in anthropology. In most of the Project studies non-treatment control groups were not used, for the simple reason that if children are not taught "X" it is not expected that they should learn "X." They may be learning

"Y," which is just as important, but a test which has content validity for "X" treatment does not necessarily have any relevance whatsoever to "Y" treatment. It is our judgement that the inclusion of control groups who do not get the treatment is uniformly self-fulfilling; they will always be behind the achievement of children in the experimental group getting the special content and teaching. There seems to be little need for such control evidence; it merely takes up the time of the control pupils and the control teacher leading to negative teacher reaction about research.

Pupil perceptions of the Anthropology material. Pupil responses to an open-ended questionnaire, which gave fourth and fifth graders an opportunity to respond negatively or positively to instruction in anthropology, indicated a preponderance of positive to negative reactions. Part of this, of course, may be attributed to the Hawthorne effect of participation in an experimental program. However, it is encouraging to the Project and teachers using the materials that elementary pupils perceive the material as more interesting than conventional social studies material. Their responses to vocabulary load is mixed; some complain about using the big words, while many say they enjoy learning these new ideas. Pupils do not report that they perceive the anthropology material any more difficult for them to learn than the regular social studies material. While not conclusive, it would appear that teacher concern about content load comes about from the insecurity of teachers untrained in anthropology more than from pupil reactions to the conceptual load (Kingston and Rice, 1967).

Costs of Evaluation. Formal evaluation in the Anthropology Curriculum Project has been, and will continue to be, largely restricted to cognitive

evaluation. This results not only from a particular educational commitment, but also experience with the costs of conducting even very limited types of evaluation.

It is very popular in social studies, as well as evaluation in general, to emphasize comprehensive evaluation, including antecedent conditions, observation of classroom transactions, and a variety of outcomes, affective as well as cognitive. Such recommendations seldom take into consideration cost efficiency and the relationship of various evaluations to consumer use, either in terms of material construction or in teaching.

The Anthropology Curriculum Project, as its name indicates, was primarily conceived as a curriculum development project. Experience indicates that in the context of curriculum development which is used as a training program, one dollar must be spent on each type of measure for every dollar spent on curriculum development. Comprehensive evaluation would thus be from four to five times more costly than the actual developmental work. And then it is questionable if the increased evaluation expenditure would actually contribute to improvement of the curriculum.

This section concludes with a caveat on the costs of evaluation, because evaluation literature rarely indicates that evaluation is costly in terms of manpower and material. The Anthropology Curriculum Project has found that one study for one developmental unit takes the energy of one doctoral trainee half-time for two years to develop material and execute one kind of evaluation. Other types of evaluation would require separate studies and separate manpower. One reason that there is frequently so little evaluation conducted in connection with curriculum development is that the allocators of development funds talk about evaluation, but seldom allocate the funds to carry on the appropriate studies.

## CHAPTER VII

### DIFFUSION OF ANTHROPOLOGY PROJECT MATERIALS

From the outset, the Anthropology Curriculum Project attempted to inform the educational community of its developmental activities by publishing professional articles and by participating in regional and national meetings. The interest in the materials of the Project lead to a Project decision to disseminate the materials to potential users, even in tentative experimental form.

This dissemination effort was based on the premise that the Project could make certain contributions to elementary social studies pedagogy in addition to the mere use of materials. Among these particular contributions were increased awareness of the content of anthropology for elementary social studies instruction and a heightened recognition of the possibility of increasing the cognitive powers of the elementary learner through more content oriented materials.

The four major forms of dissemination were: articles in professional journals, participation in national and regional meetings, responses in inquiries for general information, and making sample and classroom sets of material available to prospective users.

Table 7.1 lists the articles about the Anthropology Curriculum Project which have been carried in various journals. An increase in requests for Project information normally followed the appearance of an article describing or evaluating the Project.

Table 7.1

Bibliography of Articles Concerning the  
Anthropology Curriculum Project

1965-1970

- 1964 Bailey, W. C. Teaching anthropology in the elementary school. Nature and Science, December 1964.
- 1965 Bailey, W. C. and Clune, F. J. Anthropology for elementary schools. The Instructor, November 1965.
- Rice, M. J. and Bailey, W. C. A sequential curriculum in anthropology for grades 1-7. Social Education, April 1965.
- 1966 Bailey, W. C. Anthropology Curriculum Project, University of Georgia. American Anthropologist Newsletter, No. 7, 1966.
- 1968 Bailey, W. C. and Clune, F. J. Preparation of elementary school units on the concept of culture. Human Organization, 1968.
- Bailey, W. C. Anthropology in the elementary school. Scholastic Teacher, March 14, 1968.
- Emmons, F. and Cobia, J. Introducing anthropology concepts. Social Education, March 1968.
- Rice, M. J. Materials for teaching anthropology in the elementary grades. Social Education, March 1968.
- Thomas, G. Programmed instruction for teaching anthropology in the fifth grade. The Journal of Experimental Education, Vol. 36, No. 4, 1968.
- Potterfield, James E., "An Analysis of Elementary Children's Ability to Learn Anthropology at Grades Four, Five, and Six." Journal of Educational Research, March 1968, pp. 297-299.
- 1969 Rice, Marion J., "Evaluation in the Anthropology Curriculum Project," Georgia DESP Quarterly, Vol. 5, No. 2, Winter, 1969, pp. 7-12.
- 1970 Rice, Marion J., "Pilot Project: Anthropology Curriculum Project," Grade Teacher, February 1970, pp. 166-170.



Table 7.2 lists the meetings in which the Project has been represented. In addition to formal presentations as a part of the Program, the Project has maintained an exhibitor's booth at the National Council for Social Studies for the past five years. This has provided an opportunity not only to distribute free brochures and other information about the Project, but give users of material an opportunity to talk with Project Staff.

Table 7.2

DISSEMINATION ACTIVITIES OF THE ANTHROPOLOGY CURRICULUM PROJECT  
1964-1969

Meetings of which the Anthropology Curriculum Project staff participated.

National Meetings:

<u>Association</u>	<u>Place</u>	<u>Date</u>
American Anthropological Society	Washington	1967
American Anthropological Society	Seattle	1968
American Anthropological Society	New Orleans	1969
American Education Research Association	New York	1967
Association of Curriculum Development and Supervision	Chicago	1969
Association of Early Childhood Education	Dallas	1968
National Council of Social Studies	Miami	1965
National Council of Social Studies	Cleveland	1966
National Council of Social Studies	Seattle	1967
National Council of Social Studies	Washington, D.C.	1968
National Council of Social Studies	Houston	1969

Special Meetings:

American Anthropology Association Special Conference on Anthropology  
in the Schools, New York, 1966

American Anthropology Association Special Conference on Anthropology  
in the Schools, Washington, D.C., 1967

Area Studies Conference of the Social Science and Humanities Center,  
Nyack, New York, August 1966

Carnegie-Mellon University, Social Studies Institute, June 1968

Conference of State Social Studies Coordinators, Tuft University,  
August 1966

Connecticut State Teachers Meeting, December 1966

Georgia Council for Social Studies, February 1967

Meeting on Educational Innovation, Phoenix, Arizona, 1967

New York State Teachers Meeting, October 1966

Pennsylvania State Teachers Meeting, October 1966

Pilot Cities Project, University of Bridgeport, Connecticut 1968

Social Science Teaching Institute, Lansing, Michigan, 1969

Southern States Workshop, Daytona, Florida, 1968

Tifton County Schools, Georgia, Workshop, 1968

Workshop on Teaching Anthropology in Salem, Oregon, October 1967

Regional Meetings:

Association	Place	Date
Southern Anthropological Association	Gainesville, Florida	March 1968
Southern Anthropological Association	Atlanta	March 1967
Southern Sociological Society	Atlanta	March 1967

Table 7.3

ARTICLES AND NEWSLETTERS ON THE ANTHROPOLOGY PROJECT  
(by other than Staff writers)

Articles written by persons not associated with the Project.

Cooper, K. J. Cultural Anthropology in the Elementary School. Curriculum Innovation, Spring, 1968.

Gibson, John S. New Frontiers in the Social Studies. Medford, Mass. The Lincoln Filene Center for Citizenship and Public Affairs, Tufts University, 1965.

Goodlad, H. I. The Changing School Curriculum. New York: Fund for Advancement of Education, 1966.

Hann, R. G. Anthropology in the Schools. Educational Leadership, February, 1965.

Martiny, Diane. Anthropology is for Kids. The Atlanta Journal and Constitution Magazine. February, 1967.

Parker, Franklin. Teaching International Understanding in High School: A Bibliographical Essay. Phi Delta Kappan, December, 1967.

Newsletters and Miscellaneous publications. The following newsletters have carried news releases about the Project.

Behavior Today, Del Mar, California.

College of Education Newsletter, Ohio State University, Columbus, Ohio April, 1969.

Curriculum Development Council Newsletter

Curriculum Materials Bulletin, New York Board of Education (nd).

Curriculum Service Center Report, Texas Educational Agency (nd).

Educators' Review and Digest, Rochester, New York: Kelly Reed and Company, March, 1968.

Interamerican, North Texas State University, Vol. 3, No. 6, July, 1966.

Intercom, Foreign Policy Association, Vol. 9, No. 5, Sept-Oct., 1967.

National Association of Secondary School Principals' Bulletin, March, 1965, March, 1967.

SHAPE, St. Charles Schools, Missouri, Vol. 1, No. 3, March, 1968.

Social Science Consortium Newsletter

Social Science Notes, California Department of Education (nd).

Social Studies Curriculum Materials Bulletin, Kentucky Department of Education (nd).

St. Joseph School Notes, St. Joseph, Michigan, April, 1967.

Marin County School Reporter, Corte Madera, California, February, 1968.

Reading Horizons, Summer, 1968, Vol. 8, No. 4, pp. 182-183.

During the period June 1964 to May 1969, the Project has responded to 2,809 requests for information. From June 1969 through September 1970, an additional 548 information requests have been filled. Material to fill information requests consists of the descriptive brochure, reports of research, reprints of magazine articles, and copies of presentations made by Project staff at national meetings.

During the period June 1964 to May 1969, the Project distributed 3,096 sample sets and 373 classroom sets. From June 1969 to September 1970, an additional 2,076 sample sets and 221 classroom sets have been distributed. A list of users of classroom sets by year is given in Appendix E. This table indicates that the northern and far western states have shown more interest in anthropology materials than southern and plains states.

The dynamics of curriculum innovation were of interest to the Project, and a study was undertaken to ascertain the process by which the curriculum materials were adopted or rejected. A precis of the study is given in the concluding section.

Richburg, James R. Curriculum Diffusion: Dissemination and Adoption of Materials in the Anthropology Curriculum Project. Anthropology Curriculum Project. Athens, Georgia: University of Georgia, 1969. Unpublished masters thesis. 94 pp.

### Abstract

Main Findings. The two-step flow of information was crucial in the spread of awareness about the Anthropology Curriculum Project. Professional literature most often led to respondents becoming aware of the Project. Directors and innovators (persons that used the Project material) demonstrated more reliance on the formal school structure than did teachers or university personnel. Nearly one-third of the innovators expressed an initial negative evaluation of the materials; however, the teaching experience appears to change initial negative evaluation of the materials to a positive evaluation.

The procedures utilized by innovators in obtaining permission to teach the Project materials were determined by the position of the innovator within the school system structure. The curriculum design--anthropology units by grade level--of the Project appears to have been as important to the diffusion of the Project's materials normally used other new curricula materials. The schools' social settings deviated positively from the national statistics (population increase from 1950 to 1969, percent in white collar jobs, medium income and medium years in education) in selective categories except for non-whites in the population.

The presence of a change agent in the school system was crucial in the use of the Project's materials. The Project's diffusion model closely approximate the adoption diffusion model of rural sociology.

Purpose. The purpose of the study was to determine the processes involved in the diffusion of the Project's materials, and to identify factors that contributed to the acceptance or rejection of the materials by schools.

Methodology. The procedural steps in the study were (1) an initial review of the diffusion research literature; (2) the construction of two open-ended questionnaires, one for sample set and one for classroom users; (3) the mailing of the questionnaires to the sample; (4) coding and analyses of data from the questionnaires; (5) a more detailed review of the literature with respect to the data from the questionnaires, and (6) the identification of select socio-economic variables to ascertain characteristics of the school districts which used Project materials.

The questionnaires. The format of both questionnaires was open-ended or free response. The organization of the questionnaires approximated the adoption model of the rural sociological diffusion research tradition. Additional items requested personal data socio-economic school characteristics, teaching objectives and curriculum information.

The sample. The sample consisted of persons who had purchased materials from the Project between April 1965 and April 1968. The sample included both persons who had purchased classroom sets of materials and sample sets. The portion of the sample that had purchased only sample sets was further divided into categories labeled teachers, directors, and professors. Directors were supervisory personnel including principals. The professors category was used to describe all college or university personnel.

Sample set questionnaires were mailed to 594 individuals. The

return was 147, or 25%. Classroom set questionnaires were mailed to 57 individuals. The return was 33, or 58%.

Data Collection. The questionnaires and the 1960 United States Census constituted the raw data for the study.

Analysis. The questionnaire data was analyzed in terms of the adoption diffusion model (awareness, interest, evaluation, trial, adoption). Socio-economic data was examined for the school systems that used the materials to identify common socio-economic traits.

Results. The diffusion of the Project materials involved a pre-trial test of the material in addition to the trial stages of the rural sociology model. The additional stage is illustrated by the director and/or teacher teaching from sample materials prior to the purchase of classroom sets for further experimentation.

The statistical data presented in Tables XXV and XXVI depict deviation from the national norm in 5 out of 7 categories. The departure from the national norms in all of these cases was substantial. (See Table XXVII on attached).

Discussion. It appears the most crucial factor that led to the use of the Anthropology Curriculum Project materials was the presence of a key person or a change agent. This person in most cases was a social studies director.

This person was motivated by a dissatisfaction with elementary social studies offerings, not elementary education in general. Although in nearly a third of the cases the social studies director held an initial negative evaluation of the materials, he still taught them---perhaps because of the lack of new social studies materials.

All types of school personnel made initial inquiries about the Anthropology Curriculum Project, but in most cases it was the school district that had a social studies director that followed the initial request with a request for more information that eventually led to the classroom use of the materials.

The implication for curriculum change efforts is evident: in order to bring about change, a key person who is a part of the formal school system structure must be utilized.

The diffusion of the Anthropology Curriculum Project materials closely approximates the adoption diffusion model used by rural sociologists. The Anthropology Curriculum Project model differed with the addition of a pretrial stage.

The pretrial stage appears to be used as an additional test of new materials prior to the purchase of an experimental classroom set. The sequence of examination is (1) examination of sample set (usually be small groups), (2) teaching pilot lessons from the sample set, (3) purchase of classroom set of materials for trial, and (4) adoption or discontinuance.

By being aware of these stages, the person concerned with curricula change should be able to employ additional methods to implement the desired change.

The novelty of use of anthropology in the elementary curriculum does not appear to be as important to the diffusion of the Anthropology Curriculum Project materials as one might suppose. The general dissatisfaction with the present curricula, the discipline approach at the elementary level, and the vertical curricula organization contributed



about the same amount of the influence on the diffusion of the materials.

This study of the diffusion of the Anthropology Curriculum Project materials needs to be replicated using forced item questionnaires and seeking additional statistical information on the innovation center. The use of forced item responses would perhaps insure a larger questionnaire return. The increase in Project dissemination since April 1968 would make a new sample possible.

Summary. The major findings of this study are summarized as follows:

1. The awareness level of the Anthropology Curriculum Project increased from 1964 to 1967 and at a nearly constant rate with a sharp rise in awareness indicated for 1968.
2. Professional literature most often led to respondents becoming aware of the Anthropology Curriculum Project.
3. The two-step flow of information was crucial in the spread of awareness about the Anthropology Curriculum Project.
4. A desire to improve elementary school social studies led to an interest in the Anthropology Curriculum Project.
5. Regular book funds were the main money source utilized for the purchase of sample sets and classroom sets of materials.
6. Directors and innovators demonstrated more reliance on the formal school structure than did teacher or professors.
7. Examination of the Anthropology Curriculum Project materials was conducted by small groups.
8. Questions relating to the materials rather than to teacher or student use or reaction to the materials were more often raised during the examination of the materials.

9. Innovators appear to have given the sample sets the most extensive examination.
10. Nearly one-third of the innovators expressed an initial negative evaluation of the materials.
11. Innovators taught the materials on a small scale prior to purchasing classroom sets.
12. The procedures utilized by innovators in obtaining permission to teach the Anthropology Curriculum Project materials were determined by the position of the innovator within the school system structure.
13. The curriculum design of the Anthropology Curriculum Project appears to have been as important to the diffusion of the Project's materials as was the Project's material content.
14. Innovators stated value objectives for teaching the Anthropology Curriculum Project materials.
15. The teaching experience appears to change initial negative evaluation of the materials to a positive evaluation.
16. Schools that used the Anthropology Curriculum Project materials normally used other new curricula materials also.
17. Innovative school populations ranged from five hundred to seven hundred students with six grade levels.
18. In the population characteristics presented, the field centers deviated positively from the national statistic in all categories except for non-whites in the population.

TABLE IX  
REASONS FOR INITIAL INTEREST IN THE  
ANTHROPOLOGY CURRICULUM PROJECT

Responses	Teacher	Professor	Director
Improve elementary social studies	39%	21%	64%
Personal interest in anthropology	52%	15%	13%
Use in resource center		38%	
Interest in all new materials		23%	14%
Cultural adjustment problems	3%		7%
Instructors recommendation	6%		2%
Teacher interest		3%	

TABLE XIII  
PERSONS EXAMINING SAMPLE SETS

Responses	Teachers	Professors	Directors	Innovators
Curriculum Committee	21%	5%	66%	68%
Colleagues	33%	26%		
Myself	18%	16%	22%	23%
Students	3%	37%		
College Class	21%			
Teachers			7%	9%
Placed in Library		16%		
Curriculum Director	3%			
Not examined			5%	

TABLE XV  
MATERIAL RELATED QUESTIONS

Response	Teachers	Professors	Directors	Innovators
Is the vocabulary too difficult?	54%	44%	16%	12%
How will the materials fit the curriculum?	23%	24%	49%	27%
Are supplementary materials available?	12%	8%	8%	10%
Are the materials applicable for the grade level suggested?		8%	22%	5%
Are the materials too advanced?	4%			20%
Are they too expository?			3%	7%
Are the materials too expensive?	4%			5%
Were educators involved in the preparation of these materials?		8%		
Can they be used in the public schools?	4%	4%		
Are the materials practical to teach?				7%
Is the information dependable?				5%
Are there appropriate learning activities?			3%	

TABLE XXI  
VALUE OBJECTIVES AND VALUE ORIENTATIONS OF INNOVATORS

Response	Percentage of Responses
Better understanding of mankind	38%
Alleviate ethnocentrism	23%
None	19%
Teacher scientific method	10%
Present physical evolution theory	5%
Help child establish identity	5%

TABLE XXII  
INNOVATORS' EVALUATION OF ANTHROPOLOGY CURRICULUM  
PROJECT'S MATERIALS

Response	Percentage
Very good	42%
Vocabulary and concepts learned	17%
Static - not determined	12%
Seemed to reduce ethnocentrism	8%
Good for teachers	8%
Transfer of learning	8%
Poor	4%

TABLE XXIII  
OTHER SOCIAL STUDIES PROGRAMS USED BY INNOVATORS

Responses	Percentages
Senesh materials	46%
Contra Costa	14%
Greater Cleveland	14%
Educational Development Corporation	11%
University of Minnesota Social Studies	4%
Fenton High School materials	4%
All programs	7%

DIAGRAM I

THE ANTHROPOLOGY CURRICULUM PROJECT  
ADOPTION DIFFUSION MODEL

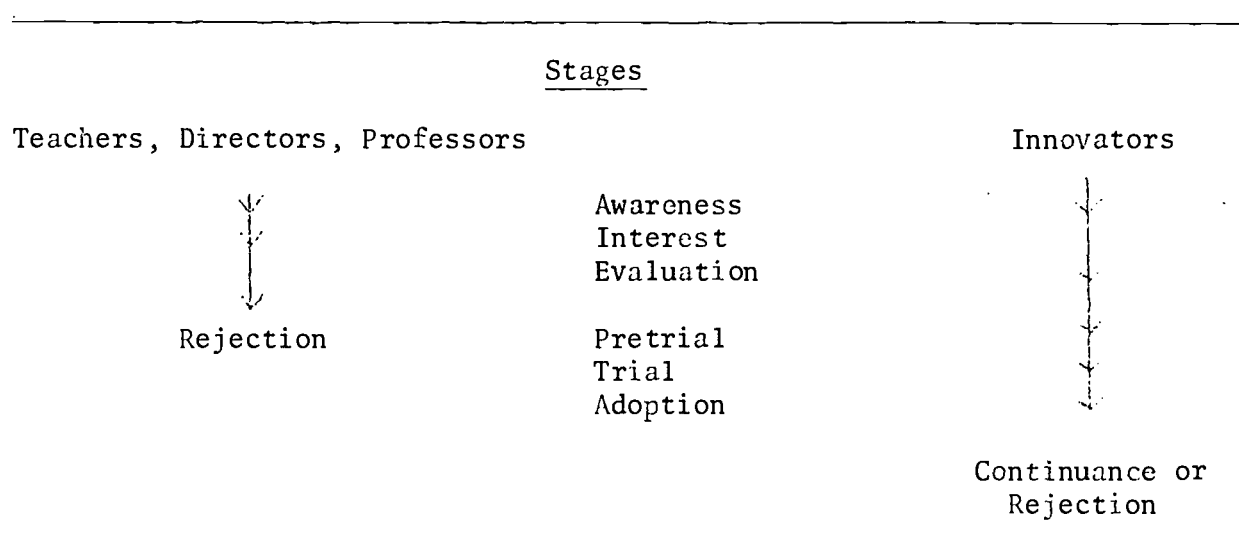


TABLE XXVIII  
THEORETICAL FIELD CENTER CHARACTERISTICS

Population	30,198
% population increase from 1950 to 1960	45.0%
% under 18 years of age	34.8%
% non-whites	2.0%
% in manufacturing	25.1%
% in white collar	52.25%
median income	\$6,936
median education	12.0 yrs.

TABLE XXVII  
DEVIATION FROM NATIONAL POPULATION CHARACTERISTIC BY FIELD CENTER LOCATIONS

	<u>U. S.</u>	<u>Field Center</u>	<u>Amount</u>
Percent of population increase from 1950 to 1960	18.5%	45.0%	+16.5%
Percent of non-white in population	11.4%	2.0%	- 9.4%
Percent in white collar positions	41.1%	52.25%	+11.5%
Median income	\$5,660	\$6,936	+\$1,270
Median education	10.6 yrs.	12.0 yrs.	+1.4 yrs.

## Appendix A

Teacher Reaction Sheet, 1965, Georgia Teachers, Summary Compilation of "Likes, Dislikes, and Changes," Concept of Culture, Grades 1 & 4

The one thing I liked most about the materials:

- Picture Books: Having pictures, simplicity of drawings, detail in drawings, explanations under the pictures, large pictures, section on building houses, size of print, interesting, readable, gave children a better understanding.
- Pupil Text: Large type, introductory section, cultural information, usefulness.
- Pupil Guide: Large print, vocabulary, pupil questions, list of five basic needs, simple instructions, new terms, topic outlines for discussion, holds pupils' interest, splendid.
- Tests: Picture format, simple to give, grading system, covered material well, short.
- Teacher Guide: Objectives for teacher, organization, activities, thought questions, details, "been lost without it."
- Teacher Background Material: Comprehensive, thorough, exceptionally good, well organized, interesting, very good, fascinated, summary.

The one thing I disliked most about the materials:

- Picture Books: Not in color, type too small, pictures of rather poor quality, insufficient pictures, vocabulary, section on religion poor, Kazak picture book difficult to read, children could not color booklets, no fourth grade information.
- Pupil Text: Vocabulary too difficult, material too difficult, not enough time, separate books, (fourth grade) enculturation section poor, no pictures, too much material.
- Pupil Guide: Vocabulary, difficult to follow, some questions obscure, not enough activities, religion difficult to teach from this section, some activities too hard, pronunciation key, enculturation section, does not match fourth grade level of ability, needs one sentence outlines at beginning of each section for help in pupil comprehension.



Tests: Vocabulary, some questions not covered in text, questions and answers ill-defined and vague, too difficult, of little use, length, negative questions.

Teacher Guide: Too much material, vocabulary, need pronunciation helps, need to know relative importance of points to be covered and emphasized, religion section poor, need total outline of material, lack of detail.

Teacher Background Material: Too much material, too many books, need pronunciation guide, too brief, need more.

If I could make one change in the material, I would

Picture Books: Add color, use better pictures, use more pictures, use larger print, use larger pictures, simplify vocabulary, include more pictures on religion and economy for explanation, Kazak too difficult, use more examples, include activities, be more specific, include more about children, have book for Americans.

Pupil Text (4th): Make vocabulary more comprehensible, simplify, add pictures, use story form of writing, drop or shorten cultural dynamics, stress Cultural Dynamics, allow more time, stress concepts more, give more on Cultural Variation.

Pupil Guide (4th): Add pronunciation key, make vocabulary more comprehensible, combine text and guide in one book, put definitions in text at first use of a new word, shorten each lesson, rewrite questions to follow text more closely.

Tests: Simplify vocabulary, match more closely to material, have fewer negative questions, clarify questions, use clearer illustrations, more questions on culture.

Teacher Guide: Combine booklets, outline information to be taught, condense, shorten lessons, use questions and answer method of instruction, limit objectives, make word lists for study, give more detail.

Teacher Background Material: Combine booklets, condense, organize better, include questions to use in class, include references to supplementary material, omit dynamics and enculturation.

## Appendix B

Teacher Log, 1966, Georgia Teachers. Summary Compilation,  
Concept of Culture, Development of Man and His Culture,  
Grades 1, 2, 4, and 5.

First Grade, Concept of Culture

## 1. Teacher's reactions to Teacher's Material:

- a. Arunta: Excellent, well-organized, interesting, gave needed background, very complete, well-arranged. Did not have soon enough, should receive about Christmas, too much information given, important points should be emphasized better to help the teacher simplify for first grade.
- b. Kazak: Interesting and informative, very helpful. Tools not covered as well as in Arunta, not enough specific suggestions, not enough time, harder to convey than Arunta.
- c. American: Good, very good. Too long, wish it was condensed, did not really understand material culture.

## 2. Teachers's reactions to Pupils' Material:

- a. Arunta: Simplicity of drawings and text very good, pictures most helpful in stimulating interest and explaining people, children picked up long words rather quickly. Need larger pictures and print, coloring book arrangement would be helpful, some pictures are not clear.
- b. Kazak: Pictures depicted broader range than in Arunta, stimulating, Would have liked more pictures, picture quality fairly poor, wording too advanced, would like a film to help see this more clearly, sentences too long and difficult.
- c. American: Children learned much from making their own books on this topic, began to see contrasts and stimulated good discussions. Need an American booklet, not enough time for own culture.

## 3. Teacher's reaction to teaching the lesson:

Very challenging experience and gratifying to accomplish a difficult teaching task, lessons were easy to plan, enjoyed material myself, more confident than last year and did a better job, enthusiastic, enjoyed teaching this. Not enough time, religion concept difficult to put across, American not as challenging to teacher, of course.

#### 4. Reaction to pupils' learning of the Material:

- a. Arunta: Children were very interested that these people are so different and eager to learn more, were impressed because often parents did not know about the Arunta, thoroughly enjoyed this topic, I was surprised at how much they learned, they were proud of learning a subject that the other children had not studied. Trouble with so many new words, did not really understand "concepts", not enough color to make the people seem real to them, so much material that much is lost, sometimes confused the Kazak and the Arunta.
- b. Kazak: Easier for pupils to understand, eager to learn---they did extra "research" on their own, quite receptive, learned to use the new words in conversation. Some difficulty keeping the two cultures straight, some trouble keeping various family members' jobs straight.
- c. American: Pupils learned new things about their own culture, understood themselves better and realized that some people live very differently from them, enjoyed learning new things about themselves. Interest varied considerably.

#### 5. Teachers' General Impression:

Responses were good, pupils eager to learn, some benefitted greatly, great enjoyment by pupils, fascinated with Kazak organization, children seemed ready to learn more than we have been teaching them. Lecture-type teaching not too effective in first grade, need concrete demonstrations, not enough time, totemism is not really understood in this grade level, remembered more about Arunta than Kazak, wish they had some stories about children in these cultures, vocabulary was too advanced, needed more time.

#### 6. Techniques and Activities used:

Wrote stories and pictures for them, read books about prehistoric man, used records and maps, played games of the aborigines, dramatized other cultures, made booklets about what they learned, compared American tools with digging sticks, made and used digging sticks, used Sears Roebuck catalog for American culture, made spears and masks (life-size), made windbreaks outdoors, used toy boomerang on playground, visited library to find more material, used teacher-made tests, filmstrips, drew yurts and camels, made mural of daily life of Arunta and Kazak, built models of Kazak homes, made written reports on Kazak animals, pantomines, demonstrated how felt was made, did some weaving

with construction paper, studied different houses and jobs, all went to own church on May 8 and then reported on different forms of worship the next day, showed home movies of family together, learned about activities of city officials.

## B. SECOND GRADE:

### 1. Teachers' reactions to Teacher Material:

- a. Archeological  
Methods: Instructions concise and easy to use, activities very helpful, adequate, well-defined, organized to make teaching easy, suitable and enjoyable, well-stated, did wonders in aiding the teacher, thorough, very good.  
Need diacritical marks, glossary, would like to have staff members visit and offer advice and criticism, not enough AV materials, some sections on dating are too involved for second grade, objectives unrealistic.
- b. The Hopi: Adequate, interesting, very good background, excellent, new words on grade level, easily taught, very good, helpful, Guide very helpful here, activities suggestions are wonderful to have.  
Not enough time.
- c. New World  
Prehistory: Adequate, interesting, well-defined, easy to follow, felt assured that important parts were being covered, very impressive, pupils eager to learn and explore further, good presentation of five stages, better objectives, easier to teach.  
Need AV material.

### 2. Teachers' reactions to Pupil Material:

- a. Archeological  
Methods: Children enthusiastic, no difficulties, provides for vocabulary growth, responded well, mastered the words, students thrilled over challenge, adequate, illustrations good, enjoyed this topic best, interesting, very good and thorough.  
Second graders can't read this very well, vocabulary required too much of the available time, answers should not be in book, some pupils could not read this along, not enough AV material, page on tools should be in pupils' text also.

- b. The Hopi: Good pictures, children interested in all phases, compared with our life, rich variety of experiences to help pupils learn, much interest, looked for more material on their own, motivated interest, very helpful pictures, pictures very helpful, pupil text quite good, children interested here.  
Not enough on Kachinas, above grade level, trade diagram could be improved, child rearing sections a bit wordy.
- c. New World  
Prehistory: Good, anxious to learn, pupils will always remember five stages in Nuclear America, enjoyed AV material on ice-age mammals, less details, more general information.  
Not enough time for so much material, Pronunciation key is needed, too much covered here.

### 3. Reaction to Teaching the Lesson:

- a. Archeological  
Methods: Book and guide useful, pictures were interesting, learning situation for everyone, curiosity made us look for more material, teacher's interest high, well-organized, eager to participate, suggested procedures are fine, enjoyed teaching this, made vocabulary posters and they helped pupils learn, excited and enthusiastic, construction at the school helped pupils to learn about stratification.  
Time is much too short, excavation topic is difficult, had to read most of the material to the pupils, attention span does not last the full hour specified.
- b. The Hopi: Really enjoyed it, surprising how fast they learned, very good, I thoroughly enjoyed teaching this, most enjoyable unit, continuity to the present time made this interesting to the pupils, easy to teach because pupils very interested.  
Pressure building to try to finish on time.
- c. New World  
Prehistory: Interest high, worked out well, borrowed materials from other classes to give them enough to keep them interested, interesting to the pupils and to me.  
Not enough time, needed AV material, most trying unit, hard to cover.

4. Teachers' reactions to pupils' learning of the material:

a. Archeological

Methods:

Enthusiasm helped them learn, quite interested by age of trees, material organization stimulates interest, impressed arranged, pupils comprehended well, well-prepared, pupils used new words and concepts in conversation, children started digging at home and had much to "show and tell", new words were a challenge, enjoyed using big words, interest high. Calendrical and Carbon 14 dating need more time for understanding, too many details, lost interest, dating gave them trouble.

b. The Hopi:

Children extremely interested, those who had traveled told the class of Indians they had seen, very good, on grade level, they really enjoyed this. one child showed more interest here than in anything else all year, good response from slow students, more interest in tracing people over a long history to the present, enthusiastic reaction to this. Some getting a little tired.

c. New World

Prehistory:

Some confusion on different stages particularly the Formative, very interested, did well, fascinated, formed new concepts of Indians, lesson on agriculture good, easily learned. Interest span short, not enough time to grasp all ideas well, need more material on Maya and Aztecs, need more AV material, did not respond as well to this unit, class retained less than I expected, confused the five stages.

5. Teachers' General Impression:

a. Archeological

Methods:

Average child contributed most in this course, felt they were interested and enjoyed it very much, Page 24 well worked out, obtained better grasp of the past, would rather have had the course (in anthropology) but enjoyed the work because of the pupils' response, response good, retention high, pupils elated so far, response enthusiastic, children bringing tools from home, exercises helped, very good, more learning took place than I anticipated. Time too short, needed more AV materials.

- b. The Hopi: Very good response, truly a learning situation, brought pictures of kachinas, hope it is here to stay, enjoyed comparing their own culture with another, a wonderful unit, much interest was shown, I enjoyed teaching this, pleased with reaction, excellent climax, this was the best.  
Pressure of time hard on us.
- c. New World  
Prehistory: Interest good, very interesting, participation was wonderful, learning took place, children alert and responsive.  
Not enough time to do this as I would have liked, became tired of this.

#### 6. Techniques and activities used:

- a. Archeological  
Methods: Pupils brought objects to hide in sand box arranged in 'strata' and then excavated it according to proper technique. Made clay tools and brought miniature tools. Construction at school was studied. Film on archeological methods. Broke down words into parts to help study them.  
Filmstrips: Prehistoric Animals, Digging for Earth's Treasure, Growing Things (Plants) (Animals).  
Discussed man from caves to space.  
Used extra books.  
Pre-test inspired curiosity and interest and provided a good 'lead-in', a few had used the process of elimination on a few questions, I think.  
Used opaque projector to show pictures from books.  
Field trip to Emory Museum.  
Activities in book helped more than anything else.  
Brought specimens of organic and inorganic material.  
Made a model burial site.  
Did 'excavation'.  
Made drawings for better explanation.
- b. The Hopi Made dolls, dibble sticks, Hopi village, Wrote stories about Hopi Indians.  
Used Hopi Indian filmstrip.  
Ground corn-made piki  
Films.  
Creative writing, made pottery, wove baskets with paper, brought piece cut from pine tree to examine, did snake dance, planted corn, made traditional Hopi tools, dramatized a hunt, made drums, did dances, used booklet from "Museum of Northern Arizona."



## c. New World

Prehistory: Made model ceremonial center, used filmstrip on Eskimo and on Cortez pottery making, scrap-book of things studied, drew maps, made posters, made a 'pretend trip' to Ocmulgee and Etowah Mounds, made a salt paste map of Nuclear America.

## C. FOURTH GRADE:

## 1. Teachers' Reactions to Teacher Material:

## a. HOW WE STUDY PEOPLE

Very helpful to explain general purposes, very good, excellent, brought course into focus, background material most helpful, review questions very helpful, objectives clearly stated.

No glossary for pronunciation, no moving pictures, no colored pictures of the people, too late in year for good teaching and learning on new subjects, teacher's manual not much help here, control teacher felt scared at first but more relaxed after reading teacher background material, sorry I didn't have time for all the activities.

## b. THE CONCEPT OF CULTURE

Well-organized, very good, satisfactory, great help for my understanding, great help.

None.

## c. UNIVERSALS AND VARIATION

Extra material was very helpful, good background material, picture books a great help, very good, well-explained.

Vocabulary difficult.

## d. ENCULTURATION

Satisfactory, questions very good, objectives fitting for the group, helpful for pupils not exposed to type of culture they should be exposed to.

No pictures.

## 2. Teachers' Reactions to Pupils' Material:

## a. HOW WE STUDY PEOPLE

Guide was very helpful to students, understandable except



for archeological terms, well-organized, good reaction, vocabulary on grade level, chapter very good, well-written, challenge to good students.

Slow students were lost.

b. THE CONCEPT OF CULTURE

Culture was very interesting to pupils, especially the fact that only man has culture, well-organized, not quite so hard as first section, difficult, very interesting and understandable, large print was helpful.

Too complicated, too many concepts and ideas, too much introduced too rapidly.

c. UNIVERSALS AND VARIATION

National Geographic very good, well-organized, excellent.

Vocabulary difficult, too much to present well, too difficult.

d. ENCULTURATION

Good, Pupils' Text very good, attacked it with pleasure.

Seems more difficult than other topics, becomes dull under Cultural Dynamics because of wording, no pictures.

3. Teachers' Reactions to Teaching the Lesson:

a. HOW WE STUDY PEOPLE:

Establishing vocabulary took a long time, group responded well, easy to teach, teacher relaxed and enjoyed teaching, enjoyed this unit, no special difficulty, using dictionary on new words helps.

Not enough time.

b. THE CONCEPT OF CULTURE

Very interesting, pupil material had to be read by teacher at first and then later pupils could read it, children had to have help in reading, clearly stated, easy to teach, seemed to accomplish more in this unit.

Some trouble with technology and economy, teacher made a chart which helped

c. CULTURAL UNIVERSALS AND VARIATION

Good organization, easy to teach, supplementary materials were a great help this year, excellent comparison of three cultures, teacher had to read material to class.

Not enough time, in a few instances, vocabulary was above grade level, writing not as good here, long and involved.

d. ENCULTURATION

Lesson plans seemed to work out better with this chapter, very interesting, materials made teaching easy, easy to teach because of familiarity this year, good, two books rather confusing.

Very easy to spend too much time on one topic.

4. Teachers' reaction to Pupils' Learning of the material:

a. HOW WE STUDY PEOPLE

Happy pupils at Anthropology Time, good idea for first unit, good, children impressed over being chosen for project, enthusiasm helped them learn, reacted favorably, study guide most helpful in getting them to do things on their own, children eager to participate, pupils enjoyed realizing they could use 'big words', most eager and curious.

Some trouble with "Questions to help me think" Vocabulary difficult.

b. THE CONCEPT OF CULTURE

Most pupils could handle the material, very good, particularly enjoyed kinship system of the Kazak, pupils comprehended well, gave me confidence, used vocabulary more freely here, better understanding of terminology.

Not enough time, adaption to environment hard to 'get across', seemed above grade level as a whole, too difficult.

c. CULTURAL UNIVERSALS AND VARIATION

Too hard for fourth grade, checked learning with teacher-made test---very good, much interest and enthusiasm here, extra materials helped a lot, pupils thoroughly enjoyed this unit.

Slow readers had great difficulty, pupils frustrated because of insufficient time on this unit.

d. ENCULTURATION

Pupils relieved and interest revived because of easier unit here, happy to see pupils participate.

Seemed less interesting---could have been tired.

5. Teacher's General Impression:

a. HOW WE STUDY PEOPLE

Delighted over pupils' enthusiasm, better pupils enjoyed the unit, very few comments about long words, generally enthusiastic, eagerness to participate very surprising, children learned and used the new words, teacher and pupils are going to spend some interesting hours with this project. Helped some slow pupils feel they could contribute as a member of the class, response positive.

Two children complained, course too hard.

b. THE CONCEPT OF CULTURE:

Response very good, understood the subject better, more interested, understood their culture only one of many, began to think more scientifically, general concepts understood, response good and logical.

None.

c. CULTURAL UNIVERSALS AND VARIATION

Religion a major interest, much interest here, pupils liked learning about other people response was wonderful, children better understood division of a man and animals.

Capital and consumer goods difficult to distinguish.

d. ENCULTURATION:

Found ways of learning culture very interesting, for me, the most interesting unit, good participation, pupils sad when course ended.

6. TECHNIQUES AND ACTIVITIES

A. HOW WE STUDY PEOPLE

Visited Etowah Mounds, reports and dioramas of different methods of studying people, reviewed some other cultures previously studied and made similar comparisons, looked at pictures of archeological diggings, pupils made up questions for the class,

tried to use new terms with other students, made poster explaining terms, discussed advantages of this way of scientific study of man, did map study.

b. THE CONCEPT OF CULTURE

Brought pictures and models of older artifacts to show change in culture over time, needed much effort to establish new meaning of culture, collected pictures of tools, book reports, three part bulletin board, had a 'barter day' for children to bring things to barter with others, watched TV program on the Cherokee Indians, Film on 'Homes around the World', Film on 'The Hopi.'

c. CULTURAL UNIVERSALS AND VARIATION

Field trip to see sheep sheared and ride horses, UGA professor came to talk about aborigines, pupils asked parents about their values - ranked children and religion as top values, used work-sheets, used books from lists of suggestions, children especially enjoyed records---tried to make instruments to imitate these sounds, wrote plays about the different people, collected pictures to show religious practices, used a magazine to show contrast of Arunta and the modern parts of Australia, used movie of African tribe to show similarities to Arunta life.

d. ENCULTURATION

Bulletin boards to show adaption to environment, stories about "If I had been Chinese, etc.", bulletin boards of family life, own family pictures of Americans, children did library research to make time lines, shared experiences showing how younger brother and sisters learn by imitation, wrote about 'traditions' they found interesting.

D. FIFTH GRADE:

1. Teachers' Responses to Teacher Material:

a. ARCHEOLOGICAL METHODS

Thoughtfully planned and very interesting, excellent, good, clearly written, very helpful.

Need to combine two books, requires frequent reference so that a better index would help, not enough time to study thoroughly.

b. EVOLUTION

Good, material shows much time and effort have been put into it, helps teacher to think, well-planned, good background and good examples to help teach.

Combine both books, so involved, very hard to refer to it, time too short on it.

c. FOSSIL MAN:

Very good, good, wonderful experience, reading and re-reading made it possible for me to teach this, good but so thorough it is hard to remember all the details, interesting and well-organized, barely stayed ahead of the class with so much material.

Need to combine books.

d. OLD WORLD PREHISTORY

Good, very complete and orderly, interesting and informative, very interesting, activities very good.

Time too short, too much material, too many books, need to combine.

2. Teachers' Reaction to Pupil Material:

a. ARCHEOLOGICAL METHODS:

Children intensely interested and delighted with books, very well planned, interesting, good variety of activities, very good for good pupils, matched fifth grade level.

Too many new words too fast, types of dating and excavation vague, too many words too fast, teacher needs advance copies, frustrating for poor pupils, need pronouncing list.

b. EVOLUTION:

Maps and charts very good, drawings good, some explanation were good, wonderful source for information on evolution, reference to birds and the Beagle interesting to children, illustrations and charts very helpful, increases their vocabulary but need more time with it, material well planned to help students understand how evolution takes place.

Children do not really comprehend long spaces of time, too much for a short time, some parts are very difficult for fifth grade, enjoyed trying to master it, very difficult, too difficult for fifth grade, some calls from parents on this one, amount of information overwhelmed students.

c. FOSSIL MAN

Very well planned, enjoyed this, children liked this best of all, chart on fossil man was most helpful.

They didn't like this chapter, couldn't read it very well or remember the names, complained that material is too hard, some areas too brief---wanted more information.

d. OLD WORLD PREHISTORY

Very good, interesting to children, prehistoric period very challenging, still eager to work, good but lengthy and wordy, tie in with history here was a help, words and material less difficult.

Too many charts, not clear to children, sometimes dates seemed not to agree, some children wouldn't even try on this.

3. Teachers' Reaction to Teaching the Lesson:

a. ARCHEOLOGICAL METHODS

Good, especially good, particularly suggested activities, had experiences I never before thought possible trying to teach something I had never seen before, dreaded this at first and then became interested, enjoyed having pupils so responsive, at first I resented trying to teach something so foreign---then pupils' response inspired me, materials gave a boost to where I had confidence and enjoyed teaching.

Too many new words, not enough time, too little time for teacher to study material, too little time.

b. EVOLUTION

Very good, interested at first, then over their heads, made me want to do further research on this, pupils like this, Darwin's work very interesting, most students had the 'Man from Ape' idea and it was very rewarding to watch them realize exactly what evolution meant, children enjoyed projects, material very interesting.

Not enough time to study them thoroughly, didn't spend much time on this, genes and mutation almost impossible for them to grasp, not as interesting, needed much more time for a subject which arouses controversy.

c. FOSSIL MAN

They enjoyed discussing different kinds of man, good planning in material enabled teacher to know just what to teach, activities very helpful, materials easy for teacher, we all enjoyed it, very interesting, teaching three classes showed me three different reactions and direction of interest.

Couldn't keep different fossils straight, some parts beyond fifth grade, sketchy in some parts, more confusion than in any other topic.

d. OLD WORLD PREHISTORY

I enjoyed this; they loved it---enjoyed teaching this, enjoying this---wish it could go on and on---good---liked chart on Old World Chronology---didn't feel so rushed here.

4. Teacher's Reaction to Pupils' Learning of the Material:

a. ARCHEOLOGICAL METHODS

Good, pupils greatly enjoyed this unit, the pictures were very helpful, activities and suggested books were very good, pupils seemed to learn and retain the material well, especially enjoyed discussing methods of excavation, began slow and then picked up interest, majority of students learned this well, children loved prehistoric animals.

Vocabulary hard to handle at first, continued use made it easier; need more time; pronunciation difficult.

b. EVOLUTION

Very good, pupils able to grasp much helpful and surprising information, pupils able to grasp more now, reading was at grade level.

Learned main objective but not much else, pupils tried but questions showed little real understanding, little interest here, eager to get to next chapter, did not understand all the terms, wide range of pupil learning.

c. FOSSIL MAN:

Pupils very interested, seemed to gain more here, felt this was the best chapter, responded best of all here, drew many pictures, interest high, many good charts on fossil man developed.

Unable to retain much of this, words getting more difficult, art here is poor, comments on art: "four toes", "no women", some questioning of fossil man by pupils based on biblical knowledge.

d. OLD WORLD PREHISTORY

Really seemed to learn this unit, Pupils eager to study this unit, really working hard and possibly dreading when it will end enjoyed tools, seemed easier for them to learn, same as other

subjects in that good readers do well and poor readers do not.

Children rather bored, might be better to try to combine chapters 3 and 4.

5. Teachers' General Impression:

a. ARCHEOLOGICAL METHODS

Good, easy to teach because of pupils' interest, glad this was first, it stimulated interest, pupils responded very favorably, felt more at ease after use of a film and filmstrip, eager to discuss, brought Indian relics they had collected, enjoying our work now, my interest helps theirs, I think---good, recognized things in other areas based on anthropological knowledge.

Needed visual material on excavation.

b. EVOLUTION

Pupils eager to participate, responses better, seemed rather uninterested, enjoyed Beagle's trip, material best presented when compared with things already known, good.

Do not include answers in the pupil guide, this unit should go to older children, don't think they understood enough to ask questions, even---some comments from children about Bible stories.

c. FOSSIL MAN:

They wanted to learn this but couldn't keep it all straight, eager to respond, quite impressed, best of all, enthusiastic, wanted to go out and hunt fossils.

Time too short, art work poor, too much material for time.

d. OLD WORLD PREHISTORY

Wanted to know all about cultures and traditions, some good responses and others trying real hard, this part seemed easy, enjoyed this so easier to teach, children who had anthropology before were more enthusiastic, good presentation of tool making.

Answers should not be in pupil guides, slightly bored, maybe more supplementary material would help.

6. Techniques and Activities:

a. ARCHEOLOGICAL METHODS

Listed words, pupils looked up in dictionary and kept notebooks. Used old aquarium for model of strata and buried objects in it.



Drew tools in notebook, brought sawed tree ring, used suggested books, drew pictures of sites, did library work on Homer, Schliemann and others, Pupils who had Anthropology before gave a discussion at beginning, collecting and demonstrating---experimenting and defining, Filmstrips---Hunting Fossils, Discovering Fossils, What Fossils Tell Us. Speaker from UGA--Dr. Charles Hudson. Film-River Valley Archeology in the Beginning---Very good! Groups investigated things about Archeological Methods, built sites in boxes, buried things and let groups 'excavate', Film-The Dinosaur Age, TV program, jars to show wet and dry preservation, Filmstrips---"Homes of Ancient People", made tools.

b. EVOLUTION

Vocabulary notebook, question time to ask each other questions, used supplementary material and library books, drew pictures of finches, teacher-made test to take and then discuss, library work on Mendel and Darwin, watched science TV shows on heredity and environment, discussed changes in ourselves and what changes might take place in man over the next million years, art work, group reports on six classes of prehistoric animals, small plastic skeleton for demonstration, brought tadpoles and watched the process of their growing

Film: A World is Born (Disney) Good.

Filmstrips: Stories that Fossils tell---Story of the Earth We Find in Rocks, Darwin Discovers Nature's Plan---Darwin: The Enchanted Isles.

c. FOSSIL MAN

Bulletin board development of the horse, cross reference to science study on plants and animals, gave reports from encyclopedias, one child brought dinosaur models and reported on them, made fossils per Teacher's Guide, Film: How Living Things Change, Maps, stories about cave men, discussed how climate may have affected these men, field trip to Peabody Hall, charts on Fossil Man, visited Geography Department at University of Georgia, social studies text discussed mestizo and children understood this from anthropology, brought skull to class for study, went to Etowah Mounds.

d. OLD WORLD PREHISTORY

Made pebble tools, discussed how various changes may have begun, discussed how and why Neolithic Revolution made such vast changes, children wrote play and presented it about life of early man, used evaluation sheet to find children's reaction to course, children wrote summary of their favorite section, invited another class to hear our group reports, gave program on Anthropology for parents

Filmstrips: Epic of Man (Life)

Films: Ancient Egypt (Coronet)

The Fossil Story (good), Ancient World Inheritance (OK)

## Appendix C

Teacher Log, 1966, Summary Comment of Twenty-Four  
Out-of-State Teachers, Concept of Culture Materials,  
Grades 1 and 4

Statements related to desired changes:

more time  
lists of available supplementary materials  
better art work  
color  
tests to use during unit  
sample lesson plans  
combine booklets  
use thumb index for booklets  
use simpler and clearer definitions  
furnish pronunciation guide  
write better material on religion and community  
indicate most important vocabulary  
write pupil material on How We Study People  
better outline  
expand picture books to include activities  
make a more sequential arrangement of picture books  
use larger pictures and print  
better summary  
use groups who are better known and for which more material is available  
furnish booklet for Americans so that the diversity of American culture  
will be shown  
eliminate repetition in materials  
have stories to read to class  
shorten background material  
furnish drills and study pages for classroom use  
discuss Kazak in relation to USSR  
more detail in picture books.

Statements related to general comments:

response excellent  
surprised at how much they learned  
favorable parent comment  
feel important studying this  
enjoyed teaching this  
critical thinking being done  
text did not satisfy them  
able to express thoughts better  
felt privileged to study this  
sure they have learned but it has been a long hard pull  
used mixture of first and fourth grade plans and this helped them learn  
very excited  
exceptionally enthusiastic  
many tremendous discussions  
most worthwhile  
discourages slow learners  
children did much independent work  
interest high  
worksheets showed them that they had learned more than they thought and  
revived interest  
had a ball  
five months later the pupils told a music supervisor about this and I was  
amazed at how much they had retained  
regular social studies course improved by this  
parents say children stimulated and want this to be a regular part of the  
course  
children who do not normally become 'involved' did so with this  
enculturation gave a lift to bogged down students

## Appendix D

List of Cooperating Georgia Schools and Teachers  
1965-19671965

<u>School System</u>	<u>Schools</u>	<u>Teachers</u>
Atlanta	A. F. Herndon	Mrs. Nancy Greene Mrs. Maurice Williams
	Crogman	Miss Besie Searlett Mrs. Ruby Tatum
Cartersville	Primary Elementary	Mrs. Nell Dyer Mrs. Jessie Edmundson
Chatham County	John Hubert	Mrs. Mamie Farley Mrs. Theresa Jones Mrs. Johnny T. Spaulding Mrs. Ellen W. Wilson
	Juliette Low	Mrs. Nettie Brown Mrs. Frances Emmons Miss Linda Metts Mrs. Martha O'Connor
Clarke County (Athens)	Barrow	Mrs. Wilma Barrows
	East Athens	Mrs. Beulah Johnson Mrs. Daisy Shaw Mrs. Thelma Smith Mrs. Pattie Winkfield
	North Athens	Mrs. Jesse Jackson Mrs. Agnes Johnson Mrs. C. Johnson Mrs. Thelma Hurly
	West Broad	Mrs. Mawdestine Burton Mrs. Mildred Miller Mrs. Gloria Little Mrs. Nancy Nesbitt
Dekalb County	Hooper Alexander	Mrs. Ann Anderson Mrs. Frances Bennett Mrs. Linda McCurly Mrs. Sara Crow

1965School SystemSchoolsTeachers

DeKalb County

Kelley Lake

Mrs. Cleo Clonts  
 Miss Mary Jane McHugh  
 Miss June Runyans  
 Miss Mac Still

Wadsworth

Mrs. Carolyn Austin  
 Mrs. Betty Hammer  
 Miss Bonnie Shirah  
 Mrs. Ruth Thompson

Madison County

Danielsville

Mrs. Mary Banister  
 Mrs. Neil Blackwell  
 Mrs. Jane Coile  
 Mrs. Mary A. Smith

Ila

Mrs. Lillian Benson  
 Mrs. Dorcas Carcy  
 Mrs. Sarah Carson  
 Mrs. Margaret Purell

Oconee County

Bogart

Mrs. Anne Downs

Bishop

Mrs. Carolyn Kenimer  
 Mrs. Edith Marshall

Watkinsville

Mrs. Hallie Norville

Rabun County

Clayton

Mrs. Dally Mae Barrow  
 Mrs. Lilic Mae Peoples  
 Mrs. Lillian Taylor  
 Mrs. Carolyn Weatherly

Rome City Schools

Northside

Mrs. Alice Dahlstrom  
 Mrs. Patricia Edison  
 Mrs. J. B. Maddox  
 Mrs. Daniel Smith

List of Cooperating Georgia Schools and Teachers  
1966

1966

<u>School System</u>	<u>Schools</u>	<u>Teachers</u>
Atlanta	A. F. Herndon	Mrs. Jean L. Bowen Mrs. Alyce S. Dodson Mrs. Annell Garner Mrs. Dorothy G. Owens Mrs. Willie Richards Mrs. Willie Mae Wharley Mrs. Delores Williams
Cartersville	Primary	Mrs. Nell Dyer Mrs. Tom Wharlier
	Elementary	Mrs. Jessie Edmondson Mrs. Edna Smith
Chatham County	John W. Hubert	Mrs. Florence Denny Mrs. Mamie Farley Mrs. Willie Hall Mrs. Theressa Jones Mrs. Hortense McMoore Mrs. Betty Rouse Mrs. Johnnie Spaulding Mrs. Ellen W. Wilson
	Juliette Low	Mrs. Nettie Brown Mrs. Jackie Cobia Mrs. Mary Daniel Mrs. Frances Emmons Miss Gail Hendry Mrs. Lena Holloway Miss Linda Metts
Clarke County (Athens)	Alps Road	Miss Mary Lanier
	East Athens	Mrs. Thelma Baker Miss Elizabeth Brown Miss W. I. Hardeman Mr. Milton Hill Mrs. Beulah Johnson Mrs. Arlene Laster Miss Alice Nolan Miss Lucy Ridley Mrs. T. S. Smith

1966School SystemSchoolsTeachersClarke County  
(Athens)

North Athens

Mrs. B. Alexander  
 Mr. William Amos  
 Mrs. Eileen Geer  
 Mrs. J. Hawkins  
 Mrs. Thelma Hurley  
 Mrs. Agnes Johnson  
 Mrs. Lillie Ray  
 Mrs. Caldonia Shelton

West Broad

Mrs. Maudestine Burton  
 Mrs. Marguerite Jackson  
 Mrs. Mildred Killian  
 Mrs. Gloria Little  
 Mrs. Nancy Nesbitt  
 Mrs. Ruth Reid  
 Mrs. Myra Wilburn

DeKalb County

Hooper Alexander

Mrs. Ann Anderson  
 Mrs. Anne Barnes  
 Mrs. Frances Bennett  
 Mrs. Campbell  
 Mrs. Mildred Carroll  
 Mrs. Sara Crow  
 Mrs. Linda McCurdy  
 Miss Marjorie Wallace  
 Mrs. Ruth Wommack

Kelley Lake

Mrs. Claire Blanchard  
 Miss Caroline Brock  
 Mrs. Cleo Clounts  
 Miss Sylvia Ellis  
 Miss Sue Hilton  
 Miss Barbara Rines  
 Mrs. Mae Beth Still

Wadsworth

Mrs. Jane Campbell  
 Mrs. Joan Candito  
 Mrs. Betty Hammer  
 Miss Bonnie Shirah  
 Mrs. Ruth Thompson  
 Mrs. Lucy Thornberg

Elbert County

Blackwell

Mrs. Lizzie M. David  
 Mrs. Hester M. Harper  
 Mr. Arthur Rogers  
 Mrs. Marie Sanders  
 Mrs. Snowbyrd Scott  
 Mrs. Alma Siler  
 Mrs. Mary E. Williams  
 Mrs. Sara J. Willingham

1966School SystemSchoolsTeachers

Elbert County

Falling Creek

Mrs. Louise Fortson  
 Mrs. Frances Gaines  
 Mrs. Georgia Hlem  
 Mrs. Olaf McCall  
 Mrs. Mildred Powell  
 Mrs. Carol Smith  
 Mrs. Jack Smith

Madison County

Danielsville

Mrs. L. E. Baker  
 Mrs. Mary H. Banister  
 Mrs. Lillian Benson  
 Mrs. Nell Blackwell  
 Miss Florence Burden  
 Mrs. Sue Lipscomb  
 Mrs. Jane Porterfield  
 Mrs. Betty Bob Wellborn

Ila

Mrs. Dorcas Carey  
 Mrs. Sara Carson  
 Mrs. J H. Davison  
 Mrs. Mildred W. Maley  
 Mrs. Margaret Purcell  
 Miss Eilene Schnider

Oconee County

Bishop

Mrs. Aliza Alderman  
 Mrs. Annie Bray  
 Mrs. Carolyn Kenimer  
 Mrs. Edythe McLeroy

Watkinsville

Mrs. Paul Camp  
 Mrs. Hallie Norvell

Rabun County

Clayton

Mrs. Sally Barrow  
 Mrs. L. Grover  
 Miss Hattie McCall  
 Mrs. Lillie M. Peoples  
 Miss Gladys Shirley  
 Mrs. Lillian Taylor  
 Mrs. Carolyn Westherly

Rome

North Rome

Mrs. Patricia Edison  
 Miss Lottie Finney  
 Mrs. William Foster  
 Mrs. Jewel Selman  
 Mrs. Charlotte Terrell



1960School SystemSchoolsTeachers

Rome

Northside

Mrs. Lucille Burnes  
Mrs. Justine Finley  
Mrs. Mary Maddox  
Mrs. Daniel D. Smith

Parochial, Athens

St. Joseph's

Sister Mary Donna, M.S.C.  
Mrs. J. E. Leeper  
Sister M. Magdelina, M.S.C.  
Sister Mary Mark, M.S.C.

## List of Cooperating Georgia Schools and Teachers

1967

1967

<u>School System</u>	<u>Schools</u>	<u>Teachers</u>
Cartersville	Primary	Mrs. Wallick Mrs. Nell Dyer
	Elementary	Mrs. Jessie Edmondson Mrs. Mines Mrs. Roberts Miss Edna Smith
	Summerhill Elementary	Mrs. Cotton Mrs. Johnson Rev. Parsons Mrs. Smith Mrs. Weems Mrs. Wikins
Clarke County (Athens)	Alps Road	Miss Mary Lanier
	North Athens	Mrs. Brown Mrs. Eileen Geer Mrs. Griffeth Miss J. Hawkins Mrs. Thelma Hurley Mrs. Roberson Mrs. White
	West Broad	Mrs. Maudestine Burton Mrs. Marguerite Jackson Mrs. Mildred Killian Mrs. Gloria Little Mrs. Nancy Nesbitt Mrs. Myra Wilburn
Elbert County	Falling Creek	Mrs. Frances Gaines Mrs. Georgia Helm Mrs. Olaf McCall Mrs. Mildred Powell Mrs. Smith

1967

<u>School System</u>	<u>Schools</u>	<u>Teachers</u>
Madison County	Danielsville	Mrs. L. E. Baker Mrs. Lillian Benson Mrs. Florence Burden Mrs. Ann Clark Miss Jeanie Doss Mrs. Martin Miss Mary Smith Mrs. Welborn
Madison County	Ila	Mrs. J. H. Davidson Mrs. Heldreth Miss Kay LeMoed Miss Mildred Maley Mrs. Martin Mrs. Swindell Mrs. Thames Mrs. Westbrook
Oconee County	Bishop	Mrs. Annie Bray Mrs. Carolyn Kenimer Mrs. Mabry Mrs. Edythe Marshall Mrs. Snider Mrs. Sutherland
Rabun County	Clayton	Mrs. Sally Barrow Mrs. Good Miss Hattie McCall Mrs. Lillie M. Peeples Miss Gladys Shirley Mrs. Mildred Story Mrs. Lillian Taylor Mrs. Carolyn Weatherly
Rome	North Rome	Mrs. Ferguson Mrs. Gaither Mrs. Lattimore Mrs. Selman Mrs. Terrell
	Northside	Mrs. Burns Mrs. Kittle Mrs. McRay Mrs. Smith
Parochial, Athens	St. Joseph's	Mrs. Julie Bill Mrs. Ann Dangar Sister M. Joanne Sister M. Nanette

## Appendix E

## List of Users of Materials in States Other than Georgia

ALABAMA

Alabama Avenue School  
Albertville, Alabama

ARIZONA

Phoenix Union High School System  
Phoenix, Arizona

Rogers Elementary School  
Tucson, Arizona

CALIFORNIA

Alhambra City School District  
Alhambra, California

Aptos School  
Aptos, California

Marin Country Day School  
Corte Madera, California

Marin Social Studies Project  
Corte Madera, California

Lompoc Unified School District  
Lompoc, California

Los Altos Public Schools  
Los Altos, California

Whisman School District  
Mountain View, California

American Institute for Research  
Palo Alto, California

Westinghouse Learning Corporation  
Palo Alto, California

Sacramento Country Day School  
Sacramento, California

San Diego City Schools  
San Diego, California

Dixie School District  
San Rafael, California

Pajaro Valley Unified School District  
Watsonville, California

#### COLORADO

Experienced Teachers Program  
Boulder, Colorado

Arapahoe County School District  
Littleton, Colorado

#### CONNECTICUT

Project DISCUSS  
Durham, Connecticut

East Farms Elementary School  
Farmington, Connecticut

Middletown Board of Education  
Middletown, Connecticut

Middle Gate School  
Newtown, Connecticut

Hawley School  
Newtown, Connecticut

Department of Education  
North Haven, Connecticut

Norwalk Board of Education  
Norwalk, Connecticut

Trumbull Board of Education  
Trumbull, Connecticut

School Department  
Unionville, Connecticut

#### DELAWARE

Mt. Pleasant Special School District  
Wilmington, Delaware

#### DISTRICT OF COLUMBIA

Sidwell Friends Schools  
Washington, D.C.

Tippecanoe School Corporation  
Lafayette, Indiana

Logansport Community School  
Logansport, Indiana

New Castle Community School  
New Castle, Indiana

Wabash Valley Education Center  
West Lafayette, Indiana

#### IOWA

Sister Jeanne Doyle  
Davenport, Iowa

#### KANSAS

Wichita State University  
Wichita, Kansas

#### KENTUCKY

Hattie Glenn  
Louisville, Kentucky

Jefferson County School Board  
Louisville, Kentucky

St. Bernard School  
Louisville, Kentucky

St. James School  
Louisville, Kentucky

Wilder Elementary School  
Louisville, Kentucky

#### MARYLAND

Maryland State Department of Education  
Baltimore, Maryland

Harford Day School  
Bel Air, Maryland

Frederick County Board  
Frederick, Maryland

FLORIDA

Escambia County Schools  
Pensacola, Florida

Independent Day School  
Temple Terrace, Florida

ILLINOIS

Champaign Community Schools  
Champaign, Illinois

Columbia School  
Champaign, Illinois

Avery Coonley School  
Downer's Grove, Illinois

Matteson School District No. 162  
Matteson, Illinois

Lincoln Elementary School  
Monmouth, Illinois

Paul Butler Elementary School  
Oak Brook, Illinois

Park Forest Public Schools  
Park Forest, Illinois

Board of Education  
Rock Island, Illinois

Board of Education  
Skokie, Illinois

School District No. 131  
South Holland, Illinois

Western Springs Public Schools  
Western Springs, Illinois

Wilmette Board of Education  
Wilmette, Illinois

INDIANA

Indiana University  
Bloomington, Indiana

Montgomery County Public Schools  
Rockville, Maryland

Spring Mill Elementary School  
Silver Springs, Maryland

Towson State College  
Towson, Maryland

#### MASSACHUSETTS

Marsh School  
Methuen, Massachusetts

#### MICHIGAN

School District of City of Ferndale  
Ferndale, Michigan

Board of Education  
Grand Rapids, Michigan

School District of Highland Park  
Highland Park, Michigan

Lansing School District  
Lansing, Michigan

Livonia Public Schools  
Livonia, Michigan

Oakland Schools Board of Education  
Pontiac, Michigan

Waterford Township School District  
Pontiac, Michigan

Avon Elementary School  
St. Clair Shores, Michigan

St. Joseph Public Schools  
St. Joseph, Michigan

Traverse City Public School  
Traverse City, Michigan

Warren Woods Public School  
Warren, Michigan

#### MINNESOTA

Berkley High School  
Berkley, Minnesota



Mankato State College  
Mankato, Minnesota

Southwest Minnesota State  
Marshall, Minnesota

Westview Elementary School  
Minneapolis, Minnesota

University of Minnesota  
Minneapolis, Minnesota

Sunnyside School  
New Brighton, Minnesota

#### MISSISSIPPI

Gulfport City Schools  
Gulfport, Mississippi

#### MISSOURI

University of Missouri  
Kansas City, Missouri

School District of St. Charles  
St. Charles, Missouri

East LaDue High School  
St. Louis, Missouri

#### NEBRASKA

Educational Service Unit No. 6  
Milford, Nebraska

#### NEW HAMPSHIRE

University of New Hampshire  
Durham, New Hampshire

Hanover High School  
Hanover, New Hampshire

#### NEW JERSEY

Ridgedale School  
Florham Park, New Jersey

Mt. Tabor School  
Mt. Tabor, New Jersey

Princeton Day Schools  
Princeton, New Jersey

Princeton University Store  
Princeton, New Jersey

Park Junior High School  
Scotch Plains, New Jersey

#### NEW YORK

Farmingdale Senior High School  
Farmingdale, New York

Meadowbrook Elementary School  
Long Island, New York

Educational Council  
Mimeola, New York

Monticello Central School  
Monticello, New York

New York City Public Schools  
New York, New York

St. Luke's School  
New York, New York

Town School  
New York, New York

Union Free School District No. 1  
Ossing, New York

Central School District No. 1  
Penfield, New York

Park Road School  
Pittsford, New York

Manhattanville College of the Sacred Heart  
Purchase, New York

#### NORTH CAROLINA

St. Genevieve-of-the-Pines  
Asheville, North Carolina

OHIO

Brent School  
Cincinnati, Ohio

Finneytown Board of Education  
Cincinnati, Ohio

Brentnell Elementary School  
Columbus, Ohio

Lakewood Board of Education  
Lakewood, Ohio

Mansfield Board of Education  
Mansfield, Ohio

Parma City School District  
Parma, Ohio

OREGON

Phoenix High School  
Phoenix, Oregon

Sacajawea School  
Portland, Oregon

Silverton Elementary  
Silverton, Oregon

PENNSYLVANIA

Centre County Board  
Bellefonte, Pennsylvania

Jay W. Worrall School  
Broomall, Pennsylvania

Twin Valley School District  
Elverson, Pennsylvania

Indiana Area School District  
Indiana, Pennsylvania

Neshaminy School District  
Langhorne, Pennsylvania

Schuylkill Valley School District  
Leesport, Pennsylvania

Rose Tree Media School District  
Lima, Pennsylvania

Peters Township  
McMurray, Pennsylvania

Marple Newtown School District  
Newtown Square, Pennsylvania

School District of Philadelphia  
Philadelphia, Pennsylvania

Owen J. Roberts School District  
Pottstown, Pennsylvania

American Institute for Research  
Pittsburg, Pennsylvania

#### RHODE ISLAND

Rhode Island College  
Providence, Rhode Island

#### SOUTH CAROLINA

Education Department Center  
Greenwood, South Carolina

#### TENNESSEE

Horace Greely High School  
Nashville, Tennessee

Robertson County Board of Education  
Springfield, Tennessee

#### TEXAS

Midland School District  
Midland, Texas

Independent School District  
Orange, Texas

#### UTAH

BIA-Intermountain School  
Brigham City, Utah

Weber County Board of Education  
Ogden, Utah

Granite School District  
Salt Lake City, Utah

#### VERMONT

Barre City Schools  
Barre, Vermont

Brattleboro Town School District  
Brattleboro, Vermont

St. Johnsbury School District  
St. Johnsbury, Vermont

Woodstock Union High School  
Woodstock, Vermont

#### VIRGINIA

Burgundy Farm Country Day School  
Alexandria, Virginia

Langston Elementary School  
Arlington, Virginia

Barden Elementary School  
Fort Belvoir, Virginia

Waterford Elementary School  
Waterford, Virginia

#### WASHINGTON

Bellevue School District No. 405  
Bellevue, Washington

Wahkiakum School District No. 200  
Cathlamet, Washington

Federal Way Public Schools  
Federal Way, Washington

Edmonds School District No. 15  
Lynnwood, Washington

Shoreline School District No. 412  
Seattle, Washington

WEST VIRGINIA

Board of Education  
Parkersburg, West Virginia

WISCONSIN

Madison Public Schools  
Madison, Wisconsin

Prairie School  
Racine, Wisconsin

Wisconsin State University  
Stevens Point, Wisconsin

Two Rivers Public Schools  
Two Rivers, Wisconsin

## Foreign Countries

CANADA

Board of Education  
Scarborough, Ontario

Cameron Annex  
Willowdale, Ontario

ITALY

Overseas School of Rome  
Rome, Italy

## Appendix F

## Project Staff

Marion J. Rice, Project Coordinator and Director  
W. C. Bailey, Co-Director, Anthropology  
Francis J. Clune, Anthropology  
Juanita Skelton, Educational-Media  
Oscar T. Jarvis, Elementary Social Studies Education  
Albert J. Kingston, Educational Psychology  
George L. Newsome, Educational Philosophy  
Warren E. Findley, Educational Psychology  
James R. Richburg, Administrative Assistant

## Graduate Research Assistants

Carol E. Austin  
V. S. Bhooma  
John L. Bolton  
Harry E. Byars  
Elmer U. Clawson  
Patsy W. Dudley  
Carole E. Hill  
William Imperatore  
Marilyn J. McCrary  
Jane H. Johnson  
Milton Kleg  
Carol Landrum  
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James E. Potterfield  
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Edward C. Sieg  
John E. Steinbrink  
Parl Swartz  
Robert Turknett  
David Watts

## APPENDIX G

## FORMAL EVALUATION IN THE ANTHROPOLOGY CURRICULUM PROJECT

1965-1969

Greene, William W., Jr. Anthropological Teaching in the First and Fourth Grades: A Comparison of Trainee and Non-Trained Teachers as Measured by Pupil Test Performance. Anthropology Curriculum Project. Athens, Georgia. University of Georgia, 1966. Unpublished dissertation. 94 pp.

Hunt, Anne Johnson. Anthropology Achievement of Normal and Disadvantaged Kindergarten Children. Anthropology Curriculum Project and Research and Development Center in Educational Stimulation. Athens, Georgia. University of Georgia, 1969. Unpublished dissertation. 63 pp.

Ilyers, R. E. Relationships of Teacher Orientations and Effectiveness Under Inductive and Deductive Teaching Methods. Anthropology Curriculum Project. Athens, Georgia. University of Georgia, 1968. Unpublished doctoral dissertation. 100 pp.

Potterfield, James E. An Analysis of Elementary School Children's Ability to Learn Anthropological Content at Grades Four, Five, and Six. Anthropology Curriculum Project. Athens, Georgia. University of Georgia, 1966. Unpublished dissertation. 88 pp.

Thomas, Georgelle. The Use of Programmed Instruction for Teaching Anthropology in the Fifth Grade. Anthropology Curriculum Project. Athens, Georgia. University of Georgia, 1967. Unpublished doctoral dissertation. 74 pp.

Wash, James A. An Evaluation of the Sequential Anthropology Curriculum Project, 1966, Grades 1, 2, 4, 5. Anthropology Curriculum Project. Athens, Georgia. University of Georgia.



Greene, William W., Jr. Anthropological Teaching in the First and Fourth Grades: A Comparison of Trained and Non-Trained Teachers as Measured by Pupil Test Performance. Anthropology Curriculum Project. Athens, Georgia. University of Georgia, 1966. Unpublished dissertation. 94 pp.

Main Findings: The subject matter of anthropology, organized into disciplined-structured units--"Concept of Culture: Ethnographic Approach," Grade 1, and "Concept of Culture: Comparative Approach," Grade 4--developed by the Anthropology Curriculum Project, University of Georgia, can be appropriately taught at Grades 1 and 4. Specialized training in anthropology is not a prerequisite to the teaching of the curriculum materials prepared by the project.

Purpose: Anthropology is not a subject taught systematically in the elementary schools. Furthermore, most elementary social studies follows a fused or multi-discipline rather than single discipline approach, the assumption being frequently expressed that a discipline organization for social science subject matter is inappropriate for elementary children. Few elementary teachers receive special training in anthropology; at most, they may have one introductory course as a part of their general social science courses. The study was undertaken to ascertain if (1) a discipline approach to the organization of the subject matter of anthropology was appropriate for young learners and (2) whether specialized training in anthropology was a prerequisite to using the materials developed by the Anthropology Curriculum Project.

Hypotheses: The two major hypotheses were: no statistically significant gain in anthropological knowledge by first and fourth-grade pupils as a result of instruction in anthropology as measured by specially constructed pre- and post-tests in anthropology; no statistically significant differences in pupil achievement in anthropology related to the teacher's training in anthropology. Sub-hypotheses related to pupil achievement on the STEP test related to teacher training in anthropology and pupil performance in anthropology related to level of teacher certification, teaching experience, race of teacher, and teacher's academic achievement in anthropology.

Nature of the Design: The experimental group consisted of teachers who had two courses in anthropology in a summer institute conducted by the Anthropology Curriculum Project. The control group consisted of teachers who had no training in anthropology. Both groups taught the same unit. The comparison, then, consisted of pupil achievement as a function of being taught by trained as

compared with untrained teachers in knowledge of anthropology. There was no non-treatment control group. The design is diagrammed as follows:

O    X<sub>t</sub>    O

O    X<sub>u</sub>    O

in which treatment X by trained (t) and untrained (u) teachers is preceded by a pre-test in anthropology and followed by a post-test in anthropology.

Treatment: The treatment for the first grade consisted of the unit "Concept of Culture: Ethnographic Approach." The treatment for the fourth grade consisted of the unit "Concept of Culture: Comparative Approach." The units utilize three ethnographies--Kazak, Arunta, and American. The "Concept of Culture" is developed in a spiral cycle--the first grade unit emphasizing simple ethnographic description whereas the fourth grade unit is presented at a higher conceptual level, emphasizing cultural universals and variation. The time allotted for the first and fourth grade units was 20 days. In addition to the pupil text, material consisted of teacher background essays and teacher manual.

Population: Intact classes, all in Georgia, were used for both experimental and control classes. Teacher participation was voluntary. There was no random assignment. In schools from which came trained teachers, efforts were made to find untrained teachers. At the first grade level, there were 12 experimental classes and 18 control classes; at the fourth, 13 experimental and 16 control. There were 861 first grade children, 355 experimental and 506 control. There were 785 fourth grade children, 374 experimental and 421 control.

#### Data Collection.

1. Pupil Achievement in anthropology, pre- and post-test, and anthropology gains, Grade 1, Forms A and E and Grades 4, Forms A and E, Anthropology Curriculum Project.

2. Achievement in social studies, Grade 4 only, STEP (Sequential Tests of Educational Progress) Achievement Test in Social Studies, Level Four, Forms A and B, administered as pre- and post-tests.

3. Other data collected consisted of: experimental teacher

knowledge of anthropology, as measured by class grades in the institute in anthropology; age of teacher; experience of teacher; level of teacher certification; and race of teacher.

Analysis. The Anderson-Findley version of the Test Scorer and Statistical Analysis Computer Program was used in test analysis. Test reliability was computed by Kuder-Richardson Formula 20. Major hypotheses were computed by product-moment and rank order correlations and by tests of the significance of differences between means, utilizing "students" distribution. The sub-hypotheses were handled by least squares analysis of variance and covariance and F ratios.

Results. Test reliability coefficients for the Anthropology Project Tests were as follows: Form 1A, 79; Form 1B, 72; Form 4A, 80; and Form 4B, 84.

Gains in post-test achievement in anthropology at both the first and fourth grade levels were significant at the .01 level, but the differences in mean gains for experimental and control classes were not significant. There was no significant gain in STEP scores. Gains in pupil scores for Grade 1 and for Grade 4 were not significantly correlated with grades made by the experimental teachers in the anthropology institute, years of teaching experience, or age. The analysis of variance by different forms of the post-test scores shows some significant variables, but the results are inconclusive because of different difficulty levels of Forms A and B.

### Discussion.

Anthropology achievement. The first major question this evaluation was devoted to was the effectiveness of discipline-organized units in anthropology for first and fourth grade children, as developed for "A Sequential Curriculum in Anthropology" by the Anthropology Curriculum Project, University of Georgia. This involved not only the development of materials, but of specially constructed achievement tests in anthropology based on the units. The significant mean gains achieved indicate the effectiveness of the material in teaching anthropology concepts. Pupil performance also indicates that curriculum material in the social studies, structured according to the organizing concepts of a single social science discipline, is appropriate for elementary school children.

Teacher training. The second major question was directed to the issue of teacher training. Here the data is somewhat equivocal. Differences in mean gains in anthropology, as measured by pre-and post-tests, were not significant for children taught by trained as compared with untrained teachers, but analysis of variance on post-test scores, using F ratios, were significant on Form 1A and Forms

4A and 4E. The differences in one raw score of pupils taught by trained as compared with untrained teachers, however, may not be interpreted as pedagogically significant. Hence, it would appear that pupils can profitably benefit from instruction in anthropology, as part of a social studies program, taught by teachers who have had no specialized training in anthropology.

STEP Social Studies Scores. The non-significance of gains on this measure confirms the lack of anthropology items on this measure. However, pupils scoring highest on this instrument also showed the highest gains in anthropology in both experimental and control groups.

Race. There was no separate data reported on pupil performance by race, but race was a significant source of variance for the Grades 1 and 4. Approximately one-third of the total teacher population was Negro, since the children taught in 1965 included in the population were all taught in segregated schools. Teacher variance attributed to race of teacher may well be a pupil-factor of low socioeconomic status, since in Georgia, most Negro pupils come from the lowest income groups whose parents have the least amount of education.

Conclusion. This preliminary evidence indicates that elementary children can learn anthropology and that specialized training in anthropology is not a prerequisite to significant gains in pupil achievement in anthropology. The latter finding is particularly important with respect to the diffusion of innovative curricula, where the material is reasonably structured so that it can be implemented in the classroom by a regular elementary teacher.

TABLE I  
SUMMARY SHEET OF SCORES ON ANTHROPOLOGY TESTS  
BEFORE CORRECTION FOR DIFFICULTY

<u>Grade 1</u>			
Form:	A-Pre-test	E-Post-test (15)*	$\Delta$ **
Number:	447	435	
Mean:	7.5	7.4	-0.1
Form:	E-Fre-test	A-Post-test (15)*	$\Delta$ **
Number:	438	419	
Mean:	5.6	10.4	4.8
<u>Grade 4</u>			
Form:	A-Pre-test	E-Post-test (15)*	$\Delta$ **
Number:	405	397	
Mean:	8.7	15.2	6.5
Form:	B-Pre-test	A-Post-test (14)*	$\Delta$ **
Number:	389	391	
Mean:	9.9	11.7	1.8

\* Number of classes

\*\*  $\Delta$  = Gains in raw-score points

TABLE II

SUMMARY OF ANTHROPOLOGY TEST SCORES FOR GRADE 1  
AFTER CORRECTION FOR DIFFICULTY

<u>Total</u>			
Form:	A-Pre-test	B-Post-test (15)*	$\Delta$ **
Number:	447	435	
Mean:	6.2	8.6	2.4
Form:	B-Pre-test	A-Post-test (15)*	$\Delta$ **
Number:	428	419	
Mean:	6.8	9.1	2.3
<u>Experimental</u>			
Form:	A-Pre-test	E-Post-test (6)*	$\Delta$ **
Number:	178	172	
Mean:	5.7	8.2	2.5
Form:	B-Pre-test	A-Post-test (6)*	$\Delta$ **
Number:	177	176	
Mean:	6.6	9.4	2.8
<u>Control</u>			
Form:	A-Pre-test	B-Post-test (9)*	$\Delta$ **
Number:	269	263	
Mean:	6.5	8.7	2.2
Form:	B-Pre-test	A-Post-test (9)*	$\Delta$ **
Number:	251	243	
Mean:	6.9	8.8	1.9

\* Number of classes

\*\*  $\Delta$  = Gains in raw-score points

TABLE V

SUMMARY OF CORRECTED ANTHROPOLOGY TEST SCORES  
AND STEP SOCIAL STUDIES BATTERY SCORES FOR GRADE 4

<u>Totals</u>			
Anthropology:	Form A pre-test	Form B post-test (15)*	/ **
Number:	405	397	
Mean:	9.9	14.1	4.2
Anthropology:	Form B pre-test	Form A post-test (14)*	/ **
Number:	389	391	
Mean:	8.8	12.9	4.1
STEP Social Studies:	Form A pre-test	Form B post-test (15)*	/ **
Number:	401	393	
Mean:	32.7	36.8	4.1
STEP Social Studies:	Form B pre-test	Form A post-test (14)*	/ **
Number:	385	388	
Mean:	32.9	34.6	1.7
<u>Experimental Group</u>			
Anthropology:	Form A pre-test	Form B post-test (7)*	/ **
Number:	199	187	
Mean:	9.5	13.0	3.5
Anthropology:	Form B pre-test	Form A post-test (6)*	/ **
Number:	175	177	
Mean:	9.2	14.6	5.4
STEP Social Studies:	Form A pre-test	Form B post-test (7)*	/ **
Number:	192	185	
Mean:	33.0	36.8	3.8
STEP Social Studies:	Form B pre-test	Form A post-test (6)*	/ **
Number:	175	175	
Mean:	33.0	36.8	3.8

\* Number of classes

\*\* / = Gains in raw-score points

TABLE V (Continued)  
 SUMMARY OF CORRECTED ANTHROPOLOGY TEST SCORES AND  
 STEP SOCIAL STUDIES BATTERY SCORES  
 FOR GRADE 4

<u>Control Group</u>			
Anthropology:	Form A pre-test	Form E post-test (8)*	$\Delta$ **
Number:	207	210	
Mean:	16.3	15.0	4.7
Anthropology:	Form E pre-test	Form A post-test (8)*	$\Delta$ **
Number:	214	214	
Mean:	8.0	11.6	3.6
STEP Social Studies	Form A pre-test	Form E post-test (8)*	$\Delta$ **
Number:	209	208	
Mean:	32.5	36.5	4.0
STEP Social Studies:	Form E pre test	Form A post-test (8)*	$\Delta$ **
Number:	210	213	
Mean:	30.8	31.5	0.7

\* Number of classes

\*\*  $\Delta$  = Gains in raw-score points



TABLE VII  
SUMMARY OF MEAN SCORES ON ANTHROPOLOGY TESTS OF  
EXPERIMENTAL AND CONTROL CLASSES IN GRADE 4  
AFTER CORRECTION FOR DIFFICULTY

<u>Experimental</u>							
Teacher (class)	Form A pre-test	Form E post-test	$\Delta$ *	Teacher (class)	Form E pre-test	Form A post-test	$\Delta$ *
31	11.5	15.9	4.4	48	8.3	12.3	4.0
33	8.2	8.9	0.7	50	10.6	22.0	11.4
35	9.2	13.2	4.0	52	9.9	13.6	3.7
37	8.9	12.2	3.3	54	9.5	13.3	3.8
39	10.3	14.5	4.2	56	7.4	11.7	4.3
41	10.0	16.5	6.5	58	8.3	12.4	4.1
43	8.7	10.1	1.4				
Experimental mean	9.5	13.0	3.5	Experimental mean	9.2	14.6	5.4
N	199	187		N	175	177	

<u>Control</u>							
Teacher (class)	Form A pre-test	Form E post-test	$\Delta$ *	Teacher (class)	Form E pre-test	Form A post-test	$\Delta$ *
32	9.0	13.9	4.0	46	7.1	8.3	1.2
34	8.7	17.7	9.0	47	7.1	9.2	2.1
36	7.7	11.3	3.6	49	8.9	12.4	3.5
38	12.5	16.6	4.1	51	7.5	9.7	2.2
40	11.2	12.7	1.5	53	9.3	14.4	5.1
42	10.5	18.8	8.3	55	9.2	13.2	4.0
44	9.1	11.1	2.0	57	7.7	10.7	3.0
45	12.9	17.0	4.1	59	10.4	16.3	5.9
Control mean	10.3	15.0	4.7	Control mean	8.0	11.6	3.6
N	207	210		N	214	214	

\*  $\Delta$  = Gains in raw-score points

TABLE IV

SUMMARY OF MEAN SCORES ON ANTHROPOLOGY TESTS OF  
EXPERIMENTAL AND CONTROL CLASSES IN GRADE 1  
AFTER CORRECTION FOR DIFFICULTY

Experimental

Teacher (class)	Form A pre-test	Form B post-test	$\Delta^*$	Teacher (class)	Form B pre-test	Form A post-test	$\Delta^*$
1	7.1	7.8	0.7	16	4.9	8.6	2.7
3	4.1	6.9	2.8	18	6.7	8.1	1.4
5	4.6	6.4	1.8	20	6.0	11.4	5.4
9	9.5	11.1	1.6	22	7.8	7.5	-0.3
11	5.6	10.3	4.7	26	7.3	11.9	4.6
13	4.8	8.8	4.0	30	7.3	10.5	3.2
Experimental mean	5.7	8.2	2.5	Experimental mean	6.6	9.4	2.8
N	178	172		N	177	176	

Control

Teacher (class)	Form A pre-test	Form E post-test	$\Delta^*$	Teacher (class)	Form E pre-test	Form A post-test	$\Delta^*$
2	6.2	7.7	1.5	17	5.5	6.2	0.7
4	7.3	9.1	1.8	19	6.4	6.9	0.5
6	5.0	9.0	4.0	21	8.4	10.0	1.6
7	4.5	6.6	2.1	23	7.3	9.2	1.9
8	5.5	7.6	2.1	24	8.3	11.3	3.0
10	8.2	10.9	2.7	25	7.4	10.7	3.3
12	8.4	7.9	-0.5	27	6.5	11.3	4.8
14	5.6	7.8	2.2	28	6.0	6.4	0.4
15	6.5	9.8	3.3	29	6.9	7.3	0.4
Control mean	6.5	8.7	2.2	Control mean	6.9	8.8	1.9
N	269	263		N	251	243	

\* $\Delta$  = Gains in raw-score points

TABLE 2

## TEST STATISTICS FOR ANTHROPOLOGY POST-TESTS

Form	Mean raw score	SE <sub>M</sub>	SD	Number of subjects	Test reliability (Kuder-Richardson Formula 20)
1A	10.03	0.15	3.21	436	.79
1B	6.90	0.14	3.10	465	.72
4A	11.05	0.26	5.25	408	.80
4B	14.27	0.29	5.92	425	.84

TABLE XXII

DIFFERENCES BETWEEN MEANS ON ANTHROPOLOGY PRE-  
AND POST-TESTS FOR CLASSES IN GRADE 1

Teacher (class)	Pre-test score	Rank	Post-test score	Rank
1	7.1	12	7.9	18.5
2	6.2	18	7.7	21
3	4.1	30	6.8	26
4	7.3	9.5	9.1	13
5	4.6	28	6.4	28.5
6	5.0	25	9.0	14
7	4.5	29	6.6	27
8	5.5	23.5	7.6	22
9	9.5	1	11.1	5
10	8.2	5	10.9	6
11	5.6	21.5	10.3	9
12	8.4	2.5	7.9	18.5
13	4.8	27	8.8	15
14	5.6	21.5	7.8	20
15	6.5	15.5	9.8	11
16	4.9	26	8.6	16
17	5.5	23.5	6.2	30
18	6.7	14	8.1	17
19	6.4	17	6.9	25
20	6.0	19.5	11.4	2
21	8.4	2.5	10.0	10
22	7.8	6	7.5	23
23	7.3	9.5	9.2	12
24	8.3	4	11.3	3.5
25	7.4	7	10.7	7
26	7.3	9.5	11.9	1
27	6.5	15.5	11.3	3.5
28	6.0	19.5	6.4	28.5
29	6.9	13	7.3	24
30	7.3	9.5	10.5	8
M	6.5		8.8	
SD	1.43		1.90	
SE <sub>m</sub> <sup>2</sup>	.07		.12	

p = .54

t = 5.22

df = 58

t<sub>.05</sub> = 2.000t<sub>.01</sub> = 2.660

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TABLE XXXII

DIFFERENCES BETWEEN MEAN GAINS ON PRE- AND POST-TESTS  
IN ANTHROPOLOGY FOR EXPERIMENTAL AND  
CONTROL CLASSES IN GRADE 1

Experimental teacher	$\Delta$	Control teacher	$\Delta$
1	0.7	2	1.5
3	2.8	4	1.8
5	1.8	6	4.0
9	1.6	7	2.1
11	4.7	8	2.1
13	4.0	10	2.7
16	2.7	12	-0.5
18	1.4	14	2.2
20	5.4	15	3.3
22	-0.3	17	0.7
26	4.6	19	0.5
30	3.2	21	1.6
		23	1.9
		24	3.0
		25	3.3
		27	4.8
		28	0.4
		29	0.4
M	2.7		2.0
SD <sup>2</sup> <sub>M</sub>	7.48		3.98
SE <sup>2</sup> <sub>M</sub>	.68		.23

t = .74  
df = 28

t .05 =  
t .01 =

TABLE XXXIII

DIFFERENCES BETWEEN MEANS ON ANTHROPOLOGY  
—PRE- AND POST-TESTS FOR CLASSES IN GRADE 4

Teacher (class)	Pre-test score	Rank	Post-test score	Rank
31	11.5	3	15.9	8
32	9.0	16	13.9	11
33	8.2	23	8.9	28
34	8.7	19.5	17.7	3
35	9.2	13.5	13.2	14.5
36	8.0	24	11.3	22
37	8.9	17.5	12.2	20
38	12.5	2	16.6	5
39	10.3	8	14.5	9
40	11.2	4	12.7	16
41	10.0	9	16.5	6
42	10.5	6	18.8	2
43	8.7	19.5	10.1	25
44	9.1	15	11.1	23
45	12.9	1	17.0	4
46	7.1	28.5	8.3	29
47	7.1	28.5	9.2	27
49	8.9	17.5	12.4	17.5
50	10.6	5	22.0	1
51	7.5	26	9.7	26
52	9.9	10	13.6	12
53	9.3	12	14.4	10
54	9.5	11	13.3	13
55	9.2	13.5	13.2	14.5
56	7.4	27	11.7	21
57	7.7	25	10.7	24
58	8.3	21.5	12.4	17.5
59	10.4	7	16.3	7
M	9.3		13.4	
SD	1.52		3.32	
SE <sub>M</sub>	0.08		0.39	

$r = .82$   
 $t = 5.94$   
 $df = 56$

$t_{.05} = 2.000$   
 $t_{.01} = 2.660$

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TABLE XXIV  
DIFFERENCES BETWEEN MEAN GAINS ON PRE- AND POST-TESTS  
IN ANTHROPOLOGY FOR EXPERIMENTAL AND CONTROL  
CLASSES IN GRADE 4

Experimental teacher	$\Delta$	Control teacher	$\Delta$
31	4.4	32	4.0
33	0.7	34	9.0
35	4.0	36	3.6
37	3.3	38	4.1
39	4.2	40	1.5
41	6.5	42	8.3
43	1.4	44	2.0
48	4.0	45	4.1
50	11.4	46	1.2
52	3.7	47	2.1
54	3.8	49	3.5
56	4.3	51	2.2
58	4.1	53	5.1
		55	4.0
		57	3.0
		59	5.9
M	4.3		4.0
SD <sub>M</sub> <sup>2</sup>	20.11		16.47
SE <sub>M</sub> <sup>2</sup>	1.68		1.09

t = .18  
df = 27

t.05 =  
t.01 =

TABLE XLIV  
ANALYSIS OF VARIANCE FOR SCORES ON FORM 1A  
ANTHROPOLOGY POST-TESTS FOR GRADE 1

Source of variation	Degrees of freedom	Sum squares	Mean square	F
Model	6	1060.27	176.71	22.08**
Training	1	187.92	187.92	23.48**
Certification	1	104.44	104.44	13.05**
Experience	1	219.45	219.45	27.42**
Age of teacher	1	43.75	43.75	5.47*
Race	1	183.18	18.318	22.89**
Anthropology Pre-test	1	26.13	26.13	3.26
Error	429	3433.50	8.00	

\*Significant at .05 level

\*\* Significant at .01 level



TABLE XLV  
ANALYSIS OF VARIANCE FOR SCORES ON FORM 1B  
ANTHROPOLOGY POST-TESTS FOR GRADE 1

Source of variation	Degrees of Freedom	Sum squares	Mean square	F
Model	7	717.16	102.45	12.48**
Training	1	0.15	0.15	0.02
Certification	2	167.07	83.53	10.18**
Experience	1	28.05	28.05	3.42
Age of teacher	1	8.95	8.95	1.09
Race	1	14.33	14.33	1.75
Anthropology Pre-test	1	396.92	396.92	48.36**
Error	457	3750.85	8.21	

\*\* Significant at .01 level

TABLE XLVI  
ANALYSIS OF VARIANCE FOR SCORES ON FORM 4A  
ANTHROPOLOGY POST-TESTS FOR GRADE 4

Source of variation	Degrees of freedom	Sum squares	Mean square	F
Model	9	4517.17	501.91	29.99**
Training	1	493.79	493.79	20.50**
Certification	3	256.06	85.35	5.10**
Experience	1	3.17	3.17	0.19
Age of Teacher	1	130.47	130.47	7.80**
Race	1	0.76	0.76	0.05
Anthropology Pre-test	1	23.28	23.28	1.39
STEP Pre-test	1	1385.05	1385.05	82.76**
Error	395	6610.82	16.74	

\*\* Significant at .01 level

TABLE XLVII  
ANALYSIS OF VARIANCE FOR SCORES ON FORM 4E  
ANTHROPOLOGY POST-TESTS FOR GRADE 4

Source of variation	Degrees of freedom	Sum squares	Mean square	F
Model	9	3689.50	409.94	15.86**
Training	1	502.22	502.22	19.43**
Certification	3	151.06	50.35	1.95
Experience	1	34.90	34.90	1.35
Age of teacher	1	3.61	3.61	0.14
Race	1	122.06	122.06	4.72*
Anthropology Pre-test	1	98.67	98.67	3.82
STEP Pre-test	1	1740.52	1740.52	67.34**
Error	409	10571.15	25.85	

\* Significant at .05 level

\*\* Significant at .01 level

Hunt, Anne Johnson, Anthropology Achievement of Normal and Disadvantaged Kindergarten Children. Anthropology Curriculum Project and Research and Development Center in Educational Stimulation. Athens, Ga.: University of Georgia, 1969. Unpublished dissertation. 63 pp.

Main Findings. Both normal and disadvantaged kindergarten children can learn anthropology organized around selected key concepts of anthropology using the scientific language of anthropology. Socio-economic status had no significant effect on the ability of pre-primary children to achieve in the study of a specially constructed kindergarten unit using cross cultural comparison entitled "Concept of Culture". Mental age but not chronological age is significantly related to learning in anthropology. The first grade test in anthropology, extended composite form, can be used with kindergarten children.

Purpose. Kindergarten curricula are traditionally based on a maturational psychology and socialization experiences, with little emphasis on intellectual development through direct verbal stimulation. The ability of young learners are underestimated. Disadvantaged children are deficient in language skills. The study was undertaken to ascertain the effectiveness of a teaching strategy based upon the selection of specific content and procedures from the discipline of anthropology for normal and disadvantaged kindergarten children.

Hypotheses. The two major research hypotheses were: no statistical significance in anthropology achievement between experimental and control groups and among socio-economic groups, using the pre-test in anthropology as a covariable. Subordinate hypotheses concerned the relationship of anthropology gain to pupil mental and chronological age.

Nature of the Design. Experimental Group I consisted of pupils representing a normal population; Experimental Group II consisted of disadvantaged pupils. Both experimental groups were taught the kindergarten unit "Concept of Culture." The control group was taught a conventional social studies unit dealing with Egypt. Teachers of the experimental groups had no specialized training in anthropology. The design is diagrammed as follows:

O	X-I	O
O	X-II	O
O	-	O

in which O is Form L, Composite Pre- and Post-test of the Anthropology Curriculum Project, Y the treatment consisting of the unit "Concept of Culture," I is the experimental group consisting of a regular kindergarten population, and II a disadvantaged kindergarten population.

Treatment. The treatment consisted of a special kindergarten unit adapted from Grade 1 and Grade 4 units "Concept of Culture" developed by the Anthropology Curriculum Project, University of Georgia. The 34 day unit consists of 34 separate lessons, organized into four parts: How We Study People, Material Culture, Roles Within the Family, Family and Community, and Religion. In addition to the teacher manual, Publication 51, pupils are provided an activity book, Publication 51a. Each lesson provides the teacher with specific learning objectives, key words, suggested materials and their use, and suggested classroom procedures. Teachers who taught the unit were lead teachers. In-service sessions to check on the progress of the unit were held every two weeks.

Population. Intact cooperating classes of the Research and Development Center in Educational Stimulation were used in the study. Experimental I classes were drawn from the Clayton County E & D cooperative pre-primary research center. Kindergarten children in this center had had two and a half years pre-primary experience, having entered the program as three-year olds. Experimental II children came from Title I kindergartens in Gainesville, Georgia. The control kindergartens were provided by Clarke County. Experimental II and Control classes, unlike Experimental I, had had no previous pre-primary experience.

Pupil characteristics by group, race, and socio-economic status were:

Group	Race		Socio-Economic Status			
	W	N	U	M	L	Total
Experimental I	73	4	28	26	23	77
Experimental II	33	50	5	3	75	83
Control	34	6	23	6	11	40
Total	140	60	56	35	109	200

#### Data Collection.

1. Pupil Achievement in Anthropology, Form 1 Composite Pre- and Post-test, KR-20 post-test reliability .795, median post-test index difficulty, .502, TESSA Program; Myers (1968) had previously found a post-test reliability of .72 on 370 first graders.

2. Socio-economic status. Hollingshead two-factor index of social position collapsed to three groups; low, middle, and upper.

3. Other data collected consisted of Stanford-Binet Form L-M IQ scores, word knowledge section of Metropolitan Achievement Battery, Test 1, and chronological age, and teacher appraisal based upon an inventory completed by the nine experimental teachers.

Analysis. Test item discrimination and other test statistics utilized the Test Scorer and Statistical Analysis 2 program. Other statistical treatment included least squares analysis of covariance and Pearson Product-Moment correlation, using the Dixon BMD03D computer program for incomplete data.

Results. The analysis of variance of post-test anthropology scores indicated that differences significant at the .01 level were obtained for the main effects of treatment and race but that sex and socio-economic status were not significant. IQ and word knowledge were positive and significantly correlated with gains in anthropology at the .01 level. Chronological age was positively correlated but not significant.

Teachers appraised the unit a success as judged by pupil interest and apparent readiness of children to study foreign cultures. Teachers reported that children handled scientific terms and concepts better than they would have predicted. The children were able to compare clothing, shelter, and earning a living in seven of the nine classes, according to teacher reports.

### Discussion.

Anthropology Achievement. This evaluation showed the successful adaptation of the teaching of anthropology to the kindergarten level, using the organizing concepts of anthropology to structure the material. The simulation technique of children playing the role of "participant observer" was probably a factor in maintaining pupil interest. This study, together with the previous studies of Greene (1966), Potterfield (1966), Wash (1967), and Myers (1968), seem to indicate that anthropology may be taught successfully in the elementary school, beginning with kindergarten.

Appropriateness of materials. Learning gains as well as pupil interest indicate the appropriateness and useability of material developed by the Anthropology Curriculum Project, University of Georgia.

Teacher Training. The question of teacher training was not investigated. However, none of the experimental teachers had

specialized training in anthropology. In-service sessions were limited to investigator contacts every two-weeks checking on the progress of the unit. It would appear, therefore, together with other evidence accumulated in the project, that specialized training is not a prerequisite to the successful use of the material.

Disadvantaged learner. Experimental I corrected mean post-test scores were 3 points higher than mean post-test scores for Experimental II. Corrected mean gains of the disadvantaged group were somewhat larger than for the advantaged group. In this study, however, the disadvantaged group were not merely compared with an advantaged group, but one which had the benefits of two additional years of pre-school experience. The performance of Experimental II group is therefore even more significant, and indicates that the disadvantaged learner may not be nearly so disadvantaged with respect to the ability to learn a new technical subject, but is primarily disadvantaged in terms of the general expectancy of the school. Instruction of the disadvantaged in material of a more structured as well as technical nature may be one way of reducing the class bias of conventional programs.

Race. There was no control of race by socio-economic status, and there was no interaction treatment of race by socio-economic status. Approximately three fourths of the Negro children in Title I Gainesville Kindergartens fall into the lower class status. Population characteristics show such a confounding of race and socio-economic class that race alone may not be the significant source of variance. However, since Experimental II was composed primarily of Negro kindergartners, the significant achievement gains indicate that Negro children profited from instruction in the unit.

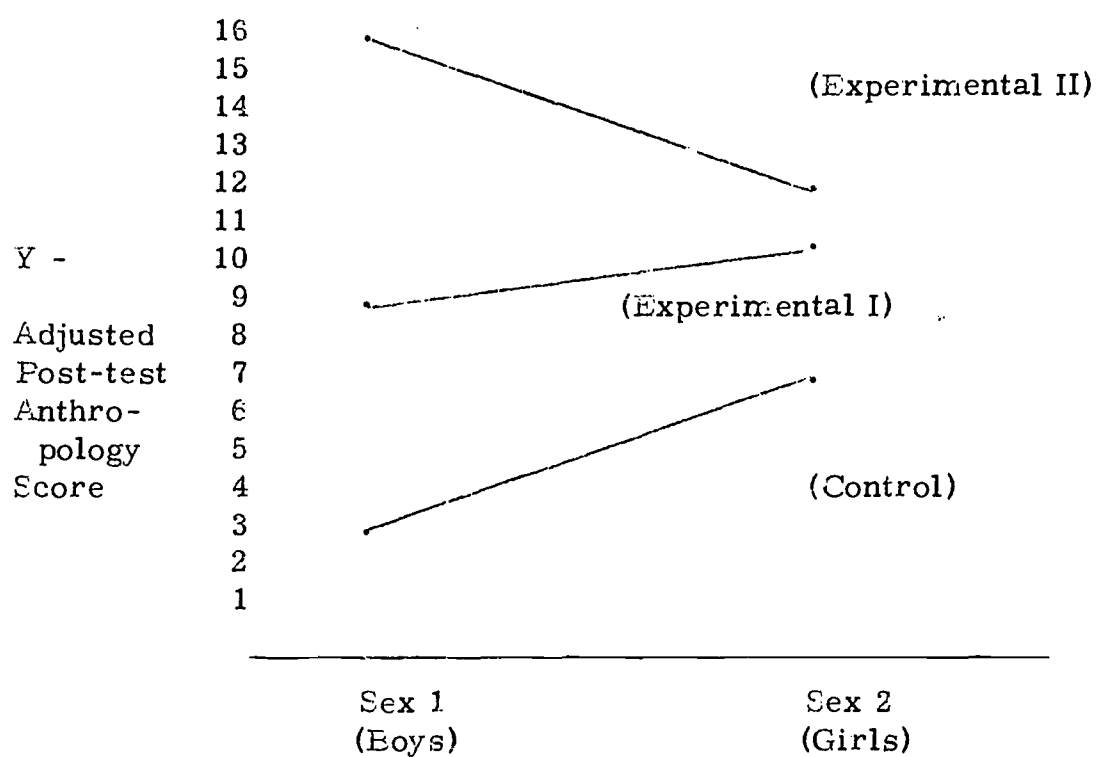
Conclusion. The Anthropology Curriculum Project "Concept of Culture" may be advantageously used in the instruction of disadvantaged as well as advantaged kindergartners. Their performance on the first grade test also indicates the suitability of using this introductory unit at the first grade level.

Gains of corrected score means were as follows:

	Pre	Post	Gain
Experimental 1	6.25	13.23	6.98
Experimental 2	2.59	10.60	7.81
Control	5.64	6.79	1.15

FIGURE 1.

INTERACTION OF SEX-BY-TREATMENT FOR POST-TEST  
ANTHROPOLOGY SCORE



## ADJUSTED MEANS

	Sex 1 (Boys)	Sex 2 (Girls)
Control	3.43	6.16
Experimental I	10.11	10.58
Experimental II	15.48	11.76



TABLE 3  
MULTIPLE ANALYSIS OF VARIANCE AND COVARIANCE OF  
ANTHROPOLOGY POST-TEST SCORES

Source of Variation	Sum of Squares	df	Mean Square	F Value
Main effects				
Treatment	1446.04	2	723.02	23.92**
Race	667.95	1	667.95	22.10**
Sex	.94	1	.94	.031
Socio-economic status	177.14	2	88.57	2.93
Interaction Effects				
Sex X Treatment	238.30	2	119.15	3.94*
Sex X Race	103.30	1	103.30	3.41
Covariable				
Pre-test	993.96	1	993.96	32.89**
Error (Within subgroups)	5711.51	189	30.21	
Total	9742.79	199		

\*\* Significant at .01 level

\* Significant at .05 level

TABLE 7  
ANTHROPOLOGY STATISTICS BY GROUP

PRE-TEST

Group	Raw Score Mean	Corrected Score Mean	Raw Score Standard Deviation	Reliability (K-R-20)	Validity
Exp. I (85)	11.84	6.25	3.70	.596	.223
Exp. II (91)	8.90	2.59	3.30	.506	.380
Control (42)	11.33	5.64	4.22	.705	.559

POST-TEST

Group	Raw Score Mean	Corrected Score Mean	Raw Score Standard Deviation	Reliability (K-R-20)	Validity
Exp. I (82)	17.24	13.23	4.29	.695	.320
Exp. II (85)	15.31	10.60	5.98	.840	.578
Control (47)	12.40	6.79	4.45	.737	.580

TABLE 8  
TOTAL GROUP ANTHROPOLOGY POST-TEST STATISTICS

	Mean	Standard Deviation	Skewness	Kurtosis
Raw Score	15.39	5.35	.13	-.49
Corrected Score	10.74	6.93	.21	-.56

Test Reliability = .795

Kuder Richardson Formula 20

Validity Coefficient .398

Anthropology Post-test difficulty Index for Total Group

Difficulty	Number of Questions
.86 - .95	1
.76 - .85	2
.66 - .75	3
.56 - .65	7
.46 - .55	6
.36 - .45	3
.26 - .35	7
.16 - .25	1
.05 - .15	0
Median .502	

Myers, T. E. Relationships of Teacher Orientations and Effectiveness Under Inductive and Deductive Teaching Methods. Anthropology Curriculum Project. Athens, Ga.: University of Georgia, 1968. Unpublished doctoral dissertation. 100 pp.

Main Findings: There was no significant differences in anthropology achievement between pupils of teachers who taught deductively and the pupils of teachers who taught inductively; of control and freedom oriented teachers, and orientations of teachers on the Eulner Attitude, as measured by the Anthropology Curriculum Project achievement tests. Where differences existed, they favored deductive, control oriented, and anxious teachers.

Purpose: Teachers have different predispositions for teaching modes. An orientation of a teacher for a particular teaching mode may facilitate or hinder a teacher in executing a prescribed pedagogical role. The study sought to determine (a) whether the attitudes of teachers are significant variables related to inductive and deductive teaching modes and (b) if pupils achieve at relatively higher rates in situations where the teacher's personality is compatible with the expected dominant teaching mode.

The materials of the Anthropology Curriculum Project, and the related teaching strategy, are deductive. In the deductive method, generalizations and concepts are first explained, and then illustrated with the supporting evidence. A reverse process is followed in the inductive method, beginning with questions and data and concluding with concepts and generalizations.

It was assumed that, in terms of teacher orientation, deductive teachers would be more "control oriented" and inductive teachers more "freedom oriented."

Hypotheses: The Anthropology Curriculum Project has been the only social studies project in recent years to explicitly advocate the deductive method for teaching in the elementary school. Advocacy since the time of Dewey has favored inductive methods. A number of people have raised questions about the effectiveness of the deductive methods advocated by the Project. The first hypotheses, therefore, was that an inductive method would result in higher levels of pupil achievement than the recommended deductive methods.

The investigator was also interested in the relationship of identifiable patterns of motivations and attitudes to teacher effectiveness as measured by pupil achievement. A second major series of

sub-hypotheses related to teacher orientations as measured by the Runner Studies of Attitude Patterns and compatibility of teacher orientation to teacher assignment, as measured by pupil achievement.

#### Data Collection

1. Anthropology achievement was measured by Composite Form I for the first grade and Composite Form 4 for the fourth grade. These composite revisions were developed in 1968 to replace Forms 1AR, 1ER, 4AR and 4ER because of the considerable variation in the difficulty of the alternate grade forms which persisted after revision. Reliability coefficients were obtained as follows: Form I, pre-test .61; post-test, .72; Form 4, pre-test, .78; post-test, .88. Form I is a 30 item, multiple choice, four foil pictorial test read to pupils; Form 4 is 50 item, four foil multiple choice test with ten additional optional items on cultural dynamics.

2. Personal orientations of the cooperating teachers was the Runner Studies of Attitude Patterns, Interview Form III, published by the Runner Associates. It provides 118 "yes" or "no" questions on twelve orientations, i. e., experimental, emphasis on rules and tradition, intuitive, practical planfulness, desire for power and authority, passive compliance, extroversiveness, hostility and blamefulness, resistance to social pressure, social anxiety, pleasure in tool-implemented hand skills, and performance anxiety.

3. Dominant teaching mode, inductive or deductive, was ascertained by observers using an investigator prepared check list of teacher behavior.

4. Teaching strategy was self-reported by teachers on a ten-point investigator prepared inventory of teaching behavior. A panel of four judges classified the teaching behaviors as inductive or deductive. There was sufficient agreement among the judges to use this inventory to obtain an index of teaching style.

Treatment: Both experimental and control first and fourth grade classes were provided the regular materials developed by the Anthropology Curriculum Project for the unit "Concept of Culture." These included both teacher background essays, teacher manual, and teacher essays. The fourth grade unit includes a pupil workbook.

The experimental classes were provided with special inductive-oriented material developed by the investigator. Two pupil booklets were developed, one for the Arunta and one for the Kazak cultures, emphasizing discovery and self-initiated learning. A teacher's guide was developed to assist the experimental teachers implement inductive teaching. The position taken by the investigator is that inductive

teaching is highly individualized. While he attempted to provide a certain structure to assist teachers with inductive teaching, the material was considered merely suggestive and teachers were asked to encourage discovery and self-initiated learning congenial to their abilities and beliefs.

Population: The subjects of this study were 30 elementary school teachers in seven school districts in California, Georgia, Illinois, Michigan, and Missouri. Fourteen of the teachers taught the fourth grade and 16 teachers, the first grade unit. There were 864 pupils. Pupils came from both rural and suburban areas and from working and professional families.

Analysis: The Test Scorer and Statistical Analysis Program 2 was utilized to secure reliability data on the composite forms of Anthropology Curriculum Project Composite Forms 1 and 4. The BMD02R Stepwise Regression computer program was employed to obtain intercorrelations between gains, pre-test scores, post-test scores, orientations on the Runner Inventory, and freedom and control orientation constellations. The Wilcoxon Signed-Ranks Test for matched pairs was used to determine if two groups of teachers differed significantly when the average gains of their pupils were converted to standard scores.

### Results:

1. Teaching mode. All the control teachers reported teaching deductively, which was anticipated. Five of the 26 responding reported teaching more inductively than deductively; these were all experimental teachers. However, four of the experimental teachers reporting teaching more deductively than the least deductive of the control teachers. The mean correlation of the experimental teachers was .12, which indicates that they actually taught more deductively than inductively.

2. Comparison of pupil gains by inductive and deductive teaching. Experimental and control teachers were matched by grade level and the Wilcoxon Signed-Ranks test for matched pairs was used to determine if the two groups of teachers differed significantly (at the .05 level) when the average gains of pupils were converted to standard scores. Ten of the control teachers excelled their match-mates and eight of the experimental teachers surpassed their match-mates. Consequently, difference in methodology was not significantly related to pupil gains. Additional statistical treatment of raw-score gains of classes (t-test of correlated samples, Gourevitch, and Mann-Whitney Test) indicated no significant differences.

If, on the other hand, the gains in standard scores of the five most deductive control teachers are compared with the five most inductive experimental teachers, the classes of the control teachers average gains of 55.7 compared to the average of 41.9 for the experimental teachers. The difference between the two means is significant at the .05 level, and may indicate that teaching deductively contributes to pupil achievement, as measured by the Anthropology Curriculum Project achievement tests.

3. Comparison of pupil gains by differences in freedom oriented and control oriented teachers. There was no significant difference in the performance of pupils taught by teachers who were control and freedom oriented as measured by the Fanner scale. However, pupils of control oriented teachers performed somewhat better.

4. Orientations on the Fanner inventory. Passive compliance and performance anxiety are significantly correlated at the .05 level with post-test anthropology achievement. The majority of orientations are very slight and have no relationship to pupil achievement.

5. Teacher compatibility of pedagogical role and pupil performance. The average mean score of classes taught by compatible as compared with incompatible groups shows little difference, and the evidence is too inconclusive to make a conclusion on this factor.

Limitations. This study has many limitations. In the first place, there was no adequate control of inductive versus deductive teaching methods. Observer reports and teacher inventory are insufficient evidence on which to base a comparison of difference in teaching style.

Furthermore, there is a real question as to whether teachers were actually presented with an alternative in teaching style. Both experimental and control classes were presented the regular materials of the Anthropology Curriculum Project. It is probable that the investigator prepared inductive material were insufficient to offset the preponderant emphasis on deduction in the Anthropology Curriculum Project materials.

Notwithstanding the narrative, expository mode in which the regular Anthropology materials are written, the teacher manual suggests many activities and questions of an inductive nature. The question of whether there was actually a comparison of two different methods is therefore a very real one.

Another limitation is the nature of the Anthropology achievement tests. The items are knowledge oriented to the specific unit learning tasks. Other more refined measures are probably required to measure the particular contribution of inductive learning to the development of pupil intellectual ability. The investigator attempted to develop two tests that would, in his judgement, assess growth in the abilities called application, analysis, and synthesis. The post-tests of this instrument were lost from four of the classes. The findings from the tests available for analysis, however, showed that the new tests were inadequate to measure the intended higher order skills which are hypothesized to accrue from inductive teaching.

Furthermore, most teachers are naturally oriented to a deductive style of teaching, since this is the prevailing mode in secondary schools and colleges. In an inductive context, when learning increments do not appear to be related to the teaching-learning time, inductive teachers frequently change to a deductive mode. Conversely, most deductive teachers use inductive methods in the elementary school. It is probable that the comparison of inductive versus inductive methodology is a false comparison, since teachers will adjust their mode of teaching to the learning context.

Anxiety about performance as a teacher evidently is related to anxiety about pupil performance, and contributes to higher pupil achievement.

Conclusions: While the study was inconclusive with respect to the major premises of teaching mode and personality orientation of the teacher, the study is useful in a number of ways. First, it emphasizes the difficulties of relating teacher behavior to pupil achievement, because of the lack of control over the actual teaching context. Second, it included a large sample of pupils in different sections of the country and with different social backgrounds. Indirectly, therefore, the study provides evidence for the useability of the Anthropology Curriculum Project materials in different areas with varying cultural characteristics, without having had specialized training in anthropology.



TABLE 1  
 AGREEMENT BETWEEN REPORTS OF STRATEGIES BY  
 TEACHERS AND DEDUCTIVE TEACHING

Experimental Teacher	Coefficient of Correlation	Control Teacher	Coefficient of Correlation
1201	.53	1210	.82
1202	.18	1220	.43
1203	-.54	1230	.45
1204	-.13	2310	.59
2301	.54	2320	.68
2302	-.58	2410	.51
2401	.21	2420	.28
2402	.46	3110	.55
3101	.54	4110	.80
3102	.47	4120	.80
3103	-.31	5110	.37
4101	-.59		
4102	.15		
5101	.68		
5102	.24		
N = 15	Mean = .12	N = 11	Mean = .58

TABLE 2

COMPARISON OF MEAN GAINS IN STANDARD SCORES OF  
POST-TESTS OVER PRE-TESTS BY THE CLASSES

Pair	Gain of Control Class	Gain of Experimental Class	Difference	Rank of Difference	Rank of Less Frequent Sign
1	78.0	44.2	-33.8	-18	
2	78.0	61.0	-17.0	-15	
3	62.2	44.2	18.0	-16	
4	62.2	61.0	- 1.2	- 2	
5	39.8	42.9	3.1	4	4
6	39.8	35.8	- 4.0	- 5.5	
7	36.9	46.1	9.2	10.5	10.5
8	63.6	30.5	-33.1	-17	
9	53.3	57.3	4.0	5.5	5.5
10	43.4	57.0	13.6	14	14
11	41.7	42.3	0.6	1	1
12	41.7	50.1	8.4	9	9
13	47.9	42.3	- 5.6	- 7	
14	47.9	50.1	2.2	3	3
15	54.9	41.6	-13.3	-13	
16	53.6	44.3	- 9.3	-12	
17	65.9	56.7	- 9.2	-10.5	
18	42.6	49.8	7.2	8	8
				T =	55
				P =	.095

TABLE 3

COMPARISON OF MEAN GAINS OF POST-TESTS OVER PRE-TESTS  
BY THE CLASSES OF EXPERIMENTAL AND CONTROL  
TEACHERS AT THE FIRST-GRADE LEVEL

Pair	Control Class	Experimental Class	Difference	D <sup>2</sup>
1	10.60	4.35	4.25	18.0625
2	10.60	7.46	3.14	9.8596
3	7.67	4.35	3.32	11.0224
4	7.67	7.46	.21	.0441
7	3.00	4.69	-1.69	2.8561
10	6.73	4.19	2.54	6.4516
11	3.88	4.00	-.12	.0144
12	3.88	5.44	-1.56	2.4336
13	4.88	4.00	.88	.7744
14	4.88	5.44	-.56	.3136
16	6.08	4.36	1.72	2.9584
18	4.05	5.38	-1.33	1.7689
			10.80	

$t = 1.51, .20 > P > .10$

TABLE 4

COMPARISON OF MEAN GAINS OF POST-TESTS OVER PRE-TESTS  
BY THE CLASSES OF EXPERIMENTAL AND CONTROL  
TEACHERS AT THE FOURTH-GRADE LEVEL

Pair	Control Class	Experimental Class	Difference	D <sup>2</sup>
5	5.20	6.08	- .88	.7744
6	5.20	4.04	1.16	1.3456
8	12.06	2.50	9.56	91.3936
9	9.08	10.23	-1.15	1.3225
15	9.54	5.71	3.83	14.6689
17	12.71	10.07	2.64	6.9696
			15.16	

$t = 1.565, .20 > P > .10$

TABLE 5

COMPARISON OF THE FREEDOM AND CONTROL ORIENTATION  
SCORES WITH CLASS GAINS FOR TEACHERS MATCHED ACCORDING  
TO ROLE AND GRADE LEVEL

Teacher	Role	Freedom Orientation	Control Orientation	Class Gain
1210	Deductive	13	18	10.60
1220	Deductive	13	0	7.67
1240	Deductive	25	18	8.78
1250	Deductive	26	20	8.55
1202	Inductive	18	16	7.46
1201	Inductive	20	22	4.35
1204	Inductive	19	19	4.04
1203	Inductive	18	16	6.08
3102	Inductive	23	21	4.00
3101	Inductive	25	14	5.44
3110	Deductive	19	18	3.88
3120	Deductive	16	7	4.88

APPENDIX I  
TEST DATA FOR CLASSES

Teacher	Grade	Pupils	Pre-Test	Mean Standard Deviation	Post-Test	Mean Standard Deviation
1201	1	26	12.42	3.73	16.77	3.82
1202	1	26	12.62	4.42	20.08	3.97
1203	4	26	22.54	6.74	28.62	7.84
1204	4	26	20.04	4.80	24.08	6.04
1210	1	15	10.73	3.82	21.33	4.88
1220	1	14	9.40	4.35	17.07	6.89
1230	4	56	20.00	5.59	25.20	8.45
1240	4	77	27.61	7.60	36.39	9.38
1250	4	75	27.75	7.49	36.29	9.15
2301	1	16	15.88	3.24	20.56	2.26
2302	4	18	26.67	4.58	29.17	5.21
2310	1	15	16.13	2.63	19.13	3.08
2320	4	16	28.00	9.87	40.06	5.21
3101	1	25	14.64	2.50	20.08	2.91
3102	1	25	17.88	3.46	21.88	2.46
3103	4	27	25.41	6.61	34.63	8.01
3110	1	16	16.50	2.48	20.38	2.80
3120	1	17	14.24	3.78	19.12	3.41
4101	1	21	21.57	2.86	25.76	2.51
4102	4	26	25.27	7.72	35.50	8.42
4110	1	22	19.68	2.42	26.41	1.23
4120	4	25	25.32	5.50	34.40	7.83
5101	1	34	16.74	2.26	22.12	2.84
5102	4	28	25.04	7.11	30.75	8.20
5110	1	59	14.31	2.69	18.36	3.23
5120	4	26	27.54	6.10	37.08	7.59

SCORES OF PARTICIPATING TEACHERS ON RUNNER INVENTORY

Scores for 30 Elementary School Teachers in Georgia,  
California, Illinois, Michigan, and Missouri  
on Twelve Orientations Derived from the  
Runner Interview Schedule III

Teacher	Eo	Ru	Io	Pl	Pw	Pc	Hl	X	Re	Sa	T	Pa
1201	4	9	5	5	2	4	4	6	6	4	5	4
1202	5	7	8	1	1	4	4	0	5	9	0	7
1203	6	2	3	4	1	6	4	4	5	8	4	7
1204	7	4	5	2	0	6	7	5	3	9	4	8
1210	1	8	6	1	1	4	5	2	6	6	0	3
1220	6	1	1	1	0	1	0	1	6	1	0	0
1230	3	6	6	6	4	8	1	3	4	4	3	2
1240	7	5	6	4	5	7	10	2	7	10	5	10
1250	7	8	4	4	1	6	2	1	2	7	5	5
2301	10	4	10	2	2	6	0	4	4	10	5	8
2302	6	3	6	2	5	4	1	3	3	4	5	2
2310	9	1	7	0	3	7	3	0	5	6	5	7
2320	4	4	7	6	2	7	5	8	5	5	0	7
2401	4	1	6	0	5	1	1	2	4	3	3	2
2402	5	5	2	0	0	2	1	1	1	9	2	2
2410	3	3	2	2	4	1	0	5	4	5	5	0
2420	5	3	7	5	6	6	2	6	7	4	3	3
3101	8	2	6	2	4	5	5	4	7	8	4	4
3102	6	5	6	6	3	4	6	5	6	8	5	9
3103	10	2	9	0	5	6	3	4	8	6	3	5
3110	4	6	6	4	1	3	5	5	4	5	5	3
3120	6	1	6	1	2	4	1	0	3	4	1	2
4101	6	7	6	1	2	1	5	2	6	7	5	7
4102	9	2	9	0	0	9	0	0	6	5	3	8
4110	8	4	6	6	0	7	2	2	7	9	5	9
4120	8	6	8	3	5	9	3	3	4	8	5	8
5101	8	1	9	0	7	0	1	4	4	3	4	0
5102	4	1	7	9	2	7	6	2	4	2	5	5
5110	6	7	8	7	3	7	6	0	5	7	5	6
5120	5	3	6	0	1	2	1	0	6	5	4	9

Symbols:

E o = Experimental Orientation  
Ru = Rules Orientation  
Io = Intuitive Orientation  
Pl = Planfulness  
Pw = Power Orientation  
Pc = Passive Compliance  
Hl = Hostility

X = Extroversion  
Re = Resistance to Social Pressure  
Sa = Social Anxiety  
T = Pleasure in Tool-Implemented Hand Skills  
Pa = Performance Anxiety

Potterfield, James E. An Analysis of Elementary School Children's Ability to Learn Anthropological Content at Grades Four, Five and Six. Anthropology Curriculum Project. Athens, Ga.: University of Georgia, 1966. Unpublished dissertation. 88 pp.

Main Finding. Grade level, teacher background in anthropology, and socio-economic status were non-significant independent variables in the ability of intermediate level grade children to learn the major concepts and develop facility in abstract reasoning, as measured by a content valid and reliable test for the unit "Concept of Culture" developed by the Anthropology Curriculum Project, University of Georgia.

Purpose. The fourth grade unit "Concept of Culture" is a conceptually organized anthropology unit centering around the major concepts of cultural universals and trait diversity. The unit had been criticized as being too highly verbal and too difficult for the fourth grade level. The study was undertaken to ascertain if placement at higher grade levels, i.e., fifth and sixth, would substantially change pupil performance, since Greene (1966) had already demonstrated that fourth grade pupils could benefit from instruction in the unit.

Hypotheses. The major hypothesis was that there was no significant difference in the achievement of fourth, fifth, and sixth grade children as measured by the unit tests. Subordinate hypotheses related to the nonsignificance of teacher preparation and social class.

Nature of design. There were two experimental groups and one control group for grades four, five, and six. Experimental group one was taught by the investigator, a member of the Anthropology Curriculum Project staff; experimental group two was taught by a regular elementary teacher who had no previous training in anthropology. A control group was administered the pre- and post-tests, but did not receive the treatment. The design is diagrammed as follows:

O <sub>as</sub>	X <sub>1</sub>	O <sub>as</sub>
O <sub>as</sub>	X <sub>2</sub>	O <sub>as</sub>
O <sub>as</sub>	-	O <sub>as</sub>

in which O<sub>a</sub> is Form A or B of the Anthropology Fourth Grade Test, Concept of Culture; O<sub>s</sub>, Form A or B of STEP Social Studies Achievement Test, Level 4; X, instruction in the anthropology unit "Concept of Culture;" X<sub>1</sub>, instruction given by a teacher trained in anthropology; and X<sub>2</sub>, instruction given by a teacher untrained in anthropology. "Trained in anthropology" was defined as two or more courses in anthropology.



Treatment. The treatment consisted of the fourth grade unit, "Concept of Culture," developed by the Anthropology Curriculum Project, University of Georgia. The "Concept of Culture" unit is an anthropology unit which may be used in a social studies program. The experimental time allocated for the unit was 20 days. Ethnographies, around which the unit develops concepts, are Arunta, Kazak, and American.

In addition to pupil text, material consists of a series of teacher ethnographies, teacher manual, and pre- and post-tests. Typical class periods consisted of introduction of new terms, reading in pupil text, class discussion of text materials, discussion of questions in study guide, written assignments, and art work. A class scrapbook was compiled showing other cultures.

Population. The population of the study consisted of five whole classes in the fourth, fifth, and sixth grades of the Oglethorpe County School District, a rural county fifteen miles from Athens, Georgia. A six grade class for control purposes was provided by the Clarke County School District in the Winterville School. All experimental and control pupils were white.

Pupil characteristics were: Total N; X, 150; C, 64

By Grades --	4	5	6	N
X1	22	20	29	71
X2	30	22	27	79
C	24	21	19	64

By Social Status	X	C
I	4	3
II	3	2
III	27	8
IV	69	26
V	47	25
N	150	64

By STEP Pre-Test Level

	4X	5X	6X	NX	NC
High	17	13	17	57	22
Middle	17	13	25	55	18
Low	18	16	14	48	24

Data Collection. The following data were collected:

1. Socio-economic status, Hollingshead Two Factor Index of Social Position.
2. Achievement in Anthropology. Anthropology Curriculum Project Form 4A and Form 4E, Revised, a 37-item, four foil multiple choice test, measuring concepts, abstract reasoning, and vocabulary; post-test reliability 0.763, KR20; median item difficulty 0.58.
3. Achievement in social studies, STEP (Sequential Tests of Educational Progress), Social Studies Achievement Level 4, Forms A and B. The STEP pre-test was used to assign pupils to high, middle and low performance categories.

Analysis. The Test Scorer and Statistical Analysis 2 (TSSA) program was used for test item analysis; test reliability was calculated by Kuder-Richardson Anthropology Formula 20. A least squares analysis of variance and covariance was used to test differences in means of final experimental data. Duncan's New Multiple Range Test designed for unequal sample size was applied to determine which means differed significantly.

Results. On Post-test anthropology scores, the main effects of grade, sex, socio-economic status, and level were not significant; the main effect of treatment was significant at the .01 level. Interaction effects of grade by treatment, and treatment by level were not significant but grade by level was significant at the .05 level. Both covariants were significant, pre-test in anthropology at the .01 level and STEP at the .05 level. Significant gains were made in concept reasoning, abstract reasoning, and vocabulary for experimental one and two classes with no change in the control classes; for both experimental 1 and 2 treatments, mean raw gains were largest in the fourth and smallest in the sixth grades.

### Discussion.

Grade Placement. Fifth and sixth grade children did not score significantly differently from fourth grade children on the fourth grade unit "Concept of Culture" prepared by the Anthropology Curriculum Project. The multiple range tests, however, did show that fifth and sixth grade children at all levels, as measured by STEP pre-test, tended to perform higher than fourth grade children, but with lower gain increments. Where a learning task is completely new, as with the materials of the Anthropology Curriculum Project, previous experience in the social studies is not sufficiently significant

to place higher grade children at a substantial advantage. This may indicate that emphasis on grade level, based on conventional ideas of levels of social studies, may have a restrictive impact on social studies learning.

Teacher training in anthropology. As measured by pupil performance on the Anthropology Achievement Test, specialized training in anthropology on the part of the teacher made little difference in the successful teaching of the unit. This finding is congruent with the earlier finding of Greene (1966) and a subsequent finding of Wash (1967).

Most social studies projects assume that effective use of the materials require extensive teacher training. Materials of the Anthropology Curriculum Project, however, are designed to be used by a teacher who has little or no training in anthropology. The testing results indicate that the material can be used by regular elementary teachers. On the basis of cost-benefits, the material appears to be useable in fairly conventional school settings without specialized training.

Socio-economic status. In general, school performance is correlated with an estimated class position. Typically, the higher the socio-economic status, the higher the mean performance.

In this study, social status was not significant. It is probable that the technical nature of the anthropology unit, new in content to children of high as well as low status children, minimizes the achievement differences usually associated with class position. This may indicate that the structured, discipline approach followed by the Anthropology Curriculum Project may be especially useful for young learners of low social class.

Anthropology gains. Highly significant gains in anthropology achievement at the three grade levels indicate that intermediate elementary children can learn the vocabulary and concepts and develop facility in abstract reasoning as measured by the Anthropology Curriculum Project tests.

Social-studies STEP tests. The STEP Level Four Social Studies Achievement Test is so lacking in anthropology specific test items that achievement gains in anthropology are not reflected in post-test STEP increments. The STEP test has no content validity with respect to anthropology items. Content valid tests for any curriculum must be developed specifically for the learning tasks of the curriculum.

Conclusion. Notwithstanding the highly conceptual and verbal nature of the fourth grade unit "Concept of Culture", intermediate elementary children in grades four, five, and six can appropriately use the material. Specialized training in anthropology is of no advantage, provided the teacher uses the teacher background as well as pupil material in the manner indicated. The technical content of the material appears to minimize class differences in achievement. The small size of the sample and limited number of teachers, however, precludes overgeneralization. These points require further examination.

TABLE 5

MULTIPLE ANALYSIS OF VARIANCE AND COVARIANCE OF  
POST-TEST ANTHROPOLOGY SCORES

Source of Variation	Sum of Squares	df	Mean Square	F Value
<b>Main Effects</b>				
Grade	21.43	2	10.72	1.07
Treatment	2679.63	2	1339.81	134.21**
Sex	7.94	1	7.94	.80
Socio-economic Status	10.90	4	2.72	.27
Level	11.32	2	5.66	.56
<b>Interaction Effects</b>				
Grade x Treatment	48.10	4	12.00	1.2
Grade x Sex	.31	2	.16	.02
Grade x Level	154.17	4	38.54	3.86**
Treatment x sex	58.77	2	29.38	2.94
Treatment x level	54.37	4	13.59	1.36
Sex by Level	12.55	2	6.27	.63
<b>Covariables</b>				
Pre-Anthropology	255.22	1	255.22	25.57**
Pre-STEP	60.07	1	60.07	6.02*
Pooled Interaction	6928.86	31	223.51	22.39
Within Subgroups (error)	1816.84	182	9.98	
<b>TOTAL</b>	<b>12120.48</b>	<b>244</b>	<b>2015.57</b>	

\*\* Significant at the .01 level

\* Significant at the .05 level

TABLE 7

ADJUSTED ANTHROPOLOGY TEST MEANS FOR GRADE, TREATMENT,  
AND GRADE BY TREATMENT GROUPS

	Grade Four	Grade Five	Grade Six	Treatment Combined**
Treatment one	21.54	23.28	23.02	22.62
Treatment two	22.80	24.68	23.41	23.63
Treatment three	14.58	14.35	16.01	14.98
Grade Combined	19.64	20.77	16.01	

\*\* Significant at the .01 level

\* Significant at the .05 level

TABLE 9  
ADJUSTED ANTHROPOLOGY TEST MEANS FOR GRADE, LEVEL  
AND GRADE BY LEVEL GROUPS

	Grade Four	Grade Five	Grade Six	Level Combined
Level one	20.00	21.10	21.98	21.09
Level two	19.70	19.44	21.76	20.30
Level three	19.03	21.77	19.72	19.84
** Grade Combined	19.64	20.77	20.82	

\*\* Significant at the .01 level

\* Significant at the .05 level

TABLE 12  
ADJUSTED ANTHROPOLOGY TEST MEANS FOR TREATMENT, LEVEL,  
AND LEVEL BY TREATMENT GROUPS

	Treatment One	Treatment Two	Treatment Three	Level Combined
Level One	24.19	23.92	15.16	21.09
Level Two	22.48	24.05	14.48	20.30
Level Three	21.50	22.92	15.30	19.48
** Treatment Combined	22.62	23.63	14.98	

\*\* Significant at the .01 level

\* Significant at the .05 level



TABLE 14  
MULTIPLE ANALYSIS OF VARIANCE AND COVARIANCE  
OF POST-TEST STEP SCORES

Source of Variation	Sun. of Squares	df	Mean Square	F Value
<b>Main Effects</b>				
Grade	435.43	2	217.72	7.04**
Treatment	168.13	2	84.06	2.72
Sex	4.39	1	4.39	.14
Socio-economic Status	328.96	4	82.24	2.66
Level	218.83	2	109.42	3.54*
<b>Interaction Effects</b>				
Grade x Treatment	908.04	4	245.01	7.93**
Grade x Sex	332.16	2	166.08	5.37**
Grade x Level	330.20	4	82.55	2.67
Treatment x Sex	247.37	2	123.68	4.00*
Treatment x Level	102.99	4	25.75	.83
Sex x Level	99.08	2	49.54	1.60
<b>Covariables</b>				
Pre-Anthropology	286.32	1	286.32	9.26**
Pre-STEP	2273.64	1	2273.64	73.56**
Pooled Interaction	26582.52	31	857.50	27.74
Within Subgroups (error)	5625.60	182	30.91	
Total	38015.65	244	4638.81	

\*\* Significant at the .01 level

\* Significant at the .05 level

TABLE 26  
ANTHROPOLOGY PRE-TEST STATISTICS

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Raw Score	14.57	4.96	0.23	-0.14
Corrected Score	7.10	6.61	0.23	-0.14

Test Reliability = 0.698

Kuder Richardson Formula 20

TABLE 28  
ANTHROPOLOGY POST-TEST STATISTICS

Variable	Mean	Standard Deviation	Skewness	Kurtosis
Raw Score	19.03	5.33	-0.10	-0.81
Corrected Score	13.04	7.11	-0.10	-0.81

Kurtosis Significant at .05 level  
Test Reliability = 0.763  
Kuder Richardson Formula 20

TABLE 30  
 VOCABULARY, ABSTRACT REASONING, AND CONCEPT ITEM RAW  
 MEANS FOR ANTHROPOLOGY PRE- AND POST-TESTS  
 EXPERIMENTAL GROUP ONE CLASSES, GRADES FOUR,  
 FIVE, AND SIX

	Grade Four	Grade Five	Grade Six
Concepts (20)			
Pre	4.53	7.10	8.86
Post	9.18	11.85	12.31
Gains	4.65	4.75	3.45
Abstract Reasoning (11)			
Pre	2.90	2.90	4.69
Post	5.90	6.95	7.52
Gains	3.00	4.05	2.83
Vocabulary (6)			
Pre	.94	1.40	2.03
Post	3.54	3.65	3.83
Gains	2.60	2.25	1.80
Total (37)			
Pre	8.37	11.40	15.58
Post	18.62	22.45	23.66
Gains	10.25	11.05	8.08

TABLE 31  
 VOCABULARY, ABSTRACT REASONING, AND CONCEPT ITEM RAW  
 MEANS FOR ANTHROPOLOGY PRE- AND POST-TESTS  
 EXPERIMENTAL GROUP TWO CLASSES, GRADES FOUR,  
 FIVE, AND SIX

	GRADE FOUR	GRADE FIVE	GRADE SIX
Concepts (20)			
Pre	5.70	9.27	11.93
Post	11.67	13.41	14.70
Gains	5.97	4.14	2.27
Abstract Reasoning (11)			
Pre	3.50	4.41	5.37
Post	5.77	7.64	8.15
Gains	2.27	3.23	2.78
Vocabulary (6)			
Pre	1.60	2.82	3.26
Post	2.77	3.30	4.48
Gains	1.17	.48	1.62
Total (37)			
Pre	10.80	16.50	20.56
Post	20.21	24.35	27.32
Gains	9.41	7.85	6.76

TABLE 32  
VOCABULARY, ABSTRACT REASONING, AND CONCEPT ITEM RAW  
MEANS FOR ANTHROPOLOGY PRE- AND POST-TESTS  
CONTROL CLASSES, GRADES FOUR, FIVE, AND SIX

	GRADE FOUR	GRADE FIVE	GRADE SIX
Concepts (20)			
Pre	6.63	7.88	8.74
Post	6.13	8.00	9.74
Gains	.50*	.14	.73
Abstract Reasoning (11)			
Pre	3.42	3.48	5.82
Post	3.96	4.57	5.58
Gains	.54	1.09	.24*
Vocabulary (6)			
Pre	1.30	1.42	2.69
Post	1.96	2.05	2.58
Gains	.66	.63	.11*
Total (37)			
Pre	11.35	12.76	17.25
Post	12.05	11.62	17.80
Gains	.70	1.86	.28

\* Losses

Thomas, Georgelle. The Use of Programed Instruction for Teaching Anthropology in the Fifth Grade. Anthropology Curriculum Project. Athens, Ga.: The University of Georgia, 1967. 74 pp. Unpublished doctoral dissertation.

"Programmed Instruction for Teaching Anthropology in the Fifth Grade." *Journal of Experimental Education*, 36:88-92, Summer, 1968.

Main Findings. Comparable achievement scores on an archeological test were made by pupils taught by a programed text and by conventional methods. However, pupils taught by the programed text learned in half the time taught by the traditional methods. Negro pre- and post-test performance was less than that of white pupils, but the percentage gain was similar. There was no difference in the performance of Negro pupils by method of teaching. Students who were better readers perform significantly better than poor readers regardless of the programed or conventional teaching method. Poor readers, however, are no more handicapped in using the programed text, which is entirely written and involves no oral teaching, than they are in conventional classroom instruction. Conventional teaching was defined as classroom instruction which involves oral explanation, discussion, and questioning and using such activities as art work, and simulation.

Purpose. Anthropology is a subject new to most elementary teachers. Initial teacher reaction to teaching anthropology in the elementary schools is frequently negative, not only because of the newness of the ethnographic data, but because the conceptual structure is unfamiliar. The preponderance of research evidence indicates that pupil gains from programed instruction is comparable to gains from other instruction with students of different abilities at all grade levels. For the abler student, programed instruction provides an effective means for organizing independent study. No programed materials, however, had been developed in anthropology.

The present study was undertaken to compare the achievement of fifth-grade students using programed instructional materials in anthropology with fifth-grade students being taught by traditional classroom techniques.

Hypothesis. The major null hypothesis was that there is no significant difference in performance between students taught by traditional classroom methods and students using programed instructional material. Minor hypotheses related to the relationships of race, reading ability, and interactions to performance and time required for instruction.

$$\begin{array}{ccc} O & X_P & O \\ O & X_C & O \end{array}$$

in which O is the pre- and post-test observations,  $X_P$  the treatment using the programed text, and  $X_C$  the conventional classroom treatment.

Population. The pupils were 320 fifth grade students in 14 Georgia classrooms, in 6 schools. There were 176 children in the experimental group, 143 white and 33 Negro. There were 144 children in the comparison group, 111 white and 33 Negro. The only pupils included were present for all testing sessions. There was a 21 per cent loss because of pupil absences.

Treatment. The experimental materials consisted of a programed text "Archeological Methods" written by the investigator. It parallels the chapter in the fifth-grade pupil text The Development of Man and His Culture: Old World Prehistory. The programing format combines the linear and branching approaches. Concepts are presented in a linear fashion. Generalizations and applications are handled by the branching method.

To provide for parallel content in the programed and narrative text, the narrative text was analyzed for major concepts and understandings. Fifty major ideas were selected, for which pre- and post-tests were written. The programed text was written, piloted with a small sample of below average students, revised, used with a full classroom of pupils comprising a span of low to high ability, and revised again. It was the final revision that was used in the experiment.

Spache Reading formula gave a reading level of 2.9 for the programed text. This formula does not, however, give sufficient consideration to vocabulary loading, and it is assumed that the reading level was much higher.

Because of the introduction of many new words critical to the understanding of the unit, a tutor tape and word book of 26 anthropological terms was developed. The words were not explained. They



were merely pronounced twice as the pupil flipped from one word-page to the next. The object was merely to associate the written form with the spoken word. Both the experimental and comparison classes were provided with the tutor word book and tapes. Playing time of the tape is 10 minutes.

The conventional classrooms were provided with the regular materials of the Anthropology Curriculum Project--teacher essay, pupil text, teacher manual, and pupil workbook. No inservice work was undertaken with either the experimental or comparison teachers. Investigator contact was limited to familiarizing teachers with the details of the experiment.

The time factor was rigidly prescribed. Instruction by conventional methods was restricted to 45 minutes a day for four days; the programed group was allowed to work in the text for four days, but not to exceed 45 minutes a day. The time sequence was: Day 1, California Reading Test; Day 2-5, tutor word book and tapes at least once daily; Day 6, Pre test; Day 7-10, Study of archeological methods, Day 11, post-test.

Data Collection. Anthropology achievement was measured by the Archeological Methods Test, Form A and Form B. These are untimed, 50-item, four-foil multiple-choice tests. Form A was used as a pre-test, and Form B was used as the post-test. Reliabilities computed by Kuder-Richardson Formula 20 were .785 and .908 respectively.

The California Reading Test, Elementary Form W, was used to determine pupil reading level.

Analysis. The Test Scorer and Statistical Analysis 2 program was used to score the archeological tests and to obtain pertinent analysis. Analysis of variance was used to determine if there were differences in experimental and conventional teaching groups on pre-test and reading. A modified treatment-by-level analysis of variance of post-test scores were used for main effects of treatment, sex, race, reading level, and interactions. Mean completion time of programed text completion was computed.

### Results.

1. Equivalency of programed and control classes. Analysis of variance indicated no significant differences in the programed or conventional classroom groups by reading level or pre-test performance. Race was a significant variable (.01) in reading and pre-test performance, with Negro performance less than that of the white pupils.

2. No significant differences were found in performance by treatment groups. However, the conventional classes required 180 minutes compared to a mean of 91 for the programmed classes. Race and reading level were both significant (.01) but the interactions of treatment by race and treatment by reading were non-significant.

### Discussion.

1. Treatment. While there was no difference in performance by method of treatment, the distribution of scores of the conventional group were more homogenous than that of the experimental group. Score distribution confirms what is frequently stated: conventional classroom instruction is aimed primarily at the middle group, and both extremes--low as well as high performing students--are handicapped. There were more high scores in the programmed group, which indicates that the abler student profited more from programmed instruction. This suggests a practical means for individualized instruction. The abler student should be given more opportunity for independent study, with such practical means as programmed texts and tutorial devices. This would free the teacher to spend more time with lower performing students.

2. Achievement and gains by race. Negro students achieved less well than white students. However, the percentage gains by race are comparable. Reading ability, however, is positively correlated with school achievement. In this study, there was a correlation of .756 with reading achievement and post-test scores. Since the adjusted means on the California Reading Test were substantially lower--55.4 compared to 84.1--the difference in anthropology achievement is to be expected. Since other studies of the Anthropology Curriculum Project (Greene, 1966; Wash, 1967) have demonstrated the high relation of reading to performance in anthropology, the racial variable should perhaps be interpreted primarily as a reading variable related to lower social class status and the cumulative effects of cognitive deprivation and poor schooling.

3. Reading and anthropology achievement. Scores on the California Reading Test were used to assign pupils to three levels of reading ability: Level 1, less than fourth; Level 2, 4 through 6; and Level 3, 7th through 8th. A positive and significant relationship was found between reading and post-test performance (.01). It is often suggested that the handicapped reader knows more than he can show on a usual test, because he is unable to read. While this argument appears spacious, a way to test it would be to read the test aloud to a group of poor readers while another group of poor readers, having the same instruction, took the test. Since educational achievement is dependent upon the ability to manipulate, read, and understand

words, reading a test in the subject area, as on the fifty-item multiple choice test, is reliable evidence of the achievement in the subject.

4. Interactions. Interactions by treatment and reading and treatment and race were non-significant. This provides further evidence that the Negro student is no more handicapped under programmed methods of instruction than under conventional methods. It also indicates that while poor readers perform less well in anthropology than abler readers, they are no more handicapped in programmed than in conventional instruction. This finding raises real questions as to teacher effectiveness in conventional classroom instruction.

5. Time. The time factor in this study substantially favored the programed text. Unfortunately, data were not reported as to mean completion time by reading level and no correlation was made of performance with time taken to complete the program. However, 60 per cent of the experimental children completed the program in less than two class sessions; only two children failed to complete the programed text. In view of the correlation of reading with achievement, however, it can be assumed that the abler readers finished the books more quickly. The study does not show that the four days allowed for archeological methods was too much or too little time for conventional instruction. However, conventional classroom instruction may be exceedingly wasteful for many students, and the alleged benefits of teacher-pupil interaction are not evidenced by the tests. More economically profitable ways for many students to use their time in class need to be explored, since it appears that there is no necessary correlation between time and learning increment.

6. Teacher and pupil feedback. There was no attempt to collect formally appraisals from pupils and teachers. Informal remarks were favorable. The tutor-tape word book was well received in both the regular and experimental classes, and appeared to be a motivational factor for subsequent learning. Teachers were favorably impressed with the way pupils used the programed text.

Conclusion. The programed text "Archeological Methods" provides an efficient means of instruction and is equally suitable for teaching the major concepts as the regular material developed by the Project. Students with less aptitude, as measured by reading achievement, are no more handicapped using a programed text than they are in conventional classes.

TABLE 2  
RELIABILITY AND VALIDITY OF  
ARCHAEOLOGICAL METHODS TEST, FORM A AND FORM B

TEST	RELIABILITY	VALIDITY
Form A (pre-test)	.785	.632
Form B (post-test)	.908	.756

TABLE 6

INDICES OF ITEM DIFFICULTY, ITEM STANDARD DEVIATION  
AND ITEM-TOTAL CORRELATION FOR FORM B

Item Number	Item Difficulty	Standard Deviation	Item-Total Correlation
1	0.480	0.500	0.234**
2	0.598	0.490	0.366**
3	0.673	0.469	0.478**
4	0.838	0.368	0.452**
5	0.682	0.466	0.310**
6	0.592	0.491	0.527**
7	0.386	0.487	0.284**
8	0.645	0.479	0.531**
9	0.685	0.464	0.487**
10	0.530	0.499	0.357**
11	0.620	0.485	0.428**
12	0.651	0.477	0.498**
13	0.564	0.496	0.335**
14	0.340	0.474	0.434**
15	0.458	0.498	0.473**
16	0.530	0.499	0.383**
17	0.735	0.441	0.375**
18	0.636	0.481	0.463**
19	0.408	0.491	0.286**
20	0.620	0.485	0.392**
21	0.333	0.471	0.322**
22	0.841	0.366	0.498**
23	0.411	0.492	0.410**
24	0.417	0.493	0.301**
25	0.346	0.476	0.346**

\* Significant at 0.05 level

\*\* Significant at 0.01 level

(Continued on next page)

TABLE 6 (Continued)

Item Number	Item Difficulty	Standard Deviation	Item-Total Correlation
26	0.695	0.461	0.391**
27	0.670	0.470	0.492**
28	0.604	0.489	0.270**
29	0.660	0.474	0.538**
30	0.352	0.478	0.455**
31	0.629	0.483	0.505**
32	0.614	0.487	0.556**
33	0.607	0.488	0.292**
34	0.639	0.480	0.484**
35	0.498	0.500	0.449**
36	0.667	0.471	0.508**
37	0.592	0.491	0.511**
38	0.707	0.455	0.541**
39	0.664	0.472	0.548**
40	0.389	0.488	0.152**
41	0.461	0.498	0.359**
42	0.632	0.482	0.530**
43	0.726	0.446	0.537**
44	0.536	0.499	0.483**
45	0.492	0.500	0.446**
46	0.695	0.461	0.592**
47	0.685	0.464	0.486**
48	0.611	0.488	0.414**
49	0.617	0.486	0.311**
50	0.570	0.495	0.537**

\* Significant at 0.05 level.

\*\* Significant at 0.01 level.

TABLE 8  
DISTRIBUTION OF SUBJECTS BY TREATMENT, RACE, AND SEX

GROUP	TOTAL NUMBER	SEX		RACE	
		MALE	FEMALE	WHITE	NEGRO
Experimental	176	83	93	143	33
Control	144	68	76	111	33

TABLE 9  
ADJUSTED MEANS ON CALIFORNIA READING TEST AND  
ARCHEOLOGICAL METHODS TEST FORM A

Variables	Adjusted Means	
	California Reading	Archeological Methods, A
Treatment		
Experimental	72.5	19.3
Control	67.0	18.5
Sex		
Male	67.5	18.8
Female	72.0	19.0
Race		
Negro	55.4	16.0
White	84.1	21.7



TABLE 10  
ANALYSIS OF VARIANCE FOR CALIFORNIA READING TEST

Source	df	SS	MS	F	P
Treatment	1	1544.37	1544.37	3.46	NS
Sex	1	1588.84	1588.84	3.56	NS
Race	1	42773.16	42773.16	96.07	.01
T X S	1	1397.90	1397.90	3.14	NS
T X E	1	332.93	332.93	.74	NS
Error	314	139800.84	445.22		

TABLE 11  
ANALYSIS OF VARIANCE FOR ARCHEOLOGICAL  
METHODS TEST FORM A

Source	df	SS	MS	F	F
Treatment	1	33.12	33.12	.79	NS
Sex	1	5.03	5.03	.12	NS
Race	1	1633.32	1633.32	39.15	.01
T X S	1	93.80	93.80	2.24	NS
T X R	1	.67	.67	.01	NS
Error	314	13097.20	41.71		

TABLE 12  
ADJUSTED MEANS ON ARCHEOLOGICAL METHODS TEST, FORM B

Variable	Adjusted Means
Treatment	
Experimental	27.5
Control	26.3
Sex	
Male	27.1
Female	26.8
Race	
Negro	24.2
White	29.6
Reading level on the California	
Level 1 (below grade 4)	19.4
Level 2 (grades 4 - 6)	25.3
Level 3 (grades 7 - 8)	36.1

TABLE 13  
ANALYSIS OF VARIANCE FOR ARCHEOLOGICAL  
METHODS TEST FORM B

Source	df	SS	MS	F	P
Treatment	1	60.53	60.53	1.00	NS
Sex	1	6.94	6.94	.11	NS
Race	1	1227.22	1227.22	20.29	.01
Reading level	2	7824.53	3912.26	64.71	.01
T X S	1	125.33	125.33	2.07	NS
T X Race	1	6.03	6.03	.09	NS
T X R Level	2	171.33	85.66	1.41	NS
Error	310	18741.49	60.45		

TABLE 14  
COMPARISON OF EXPERIMENTAL AND CONTROL GROUP  
PERFORMANCE ON ARCHEOLOGICAL METHODS TEST FORM B

Raw Scores	Percentage of Subjects	
	Experimental	Control
1 - 10	.034	.006
11 - 20	.194	.251
21 - 30	.306	.319
31 - 40	.278	.298
41 - 50	.188	.132

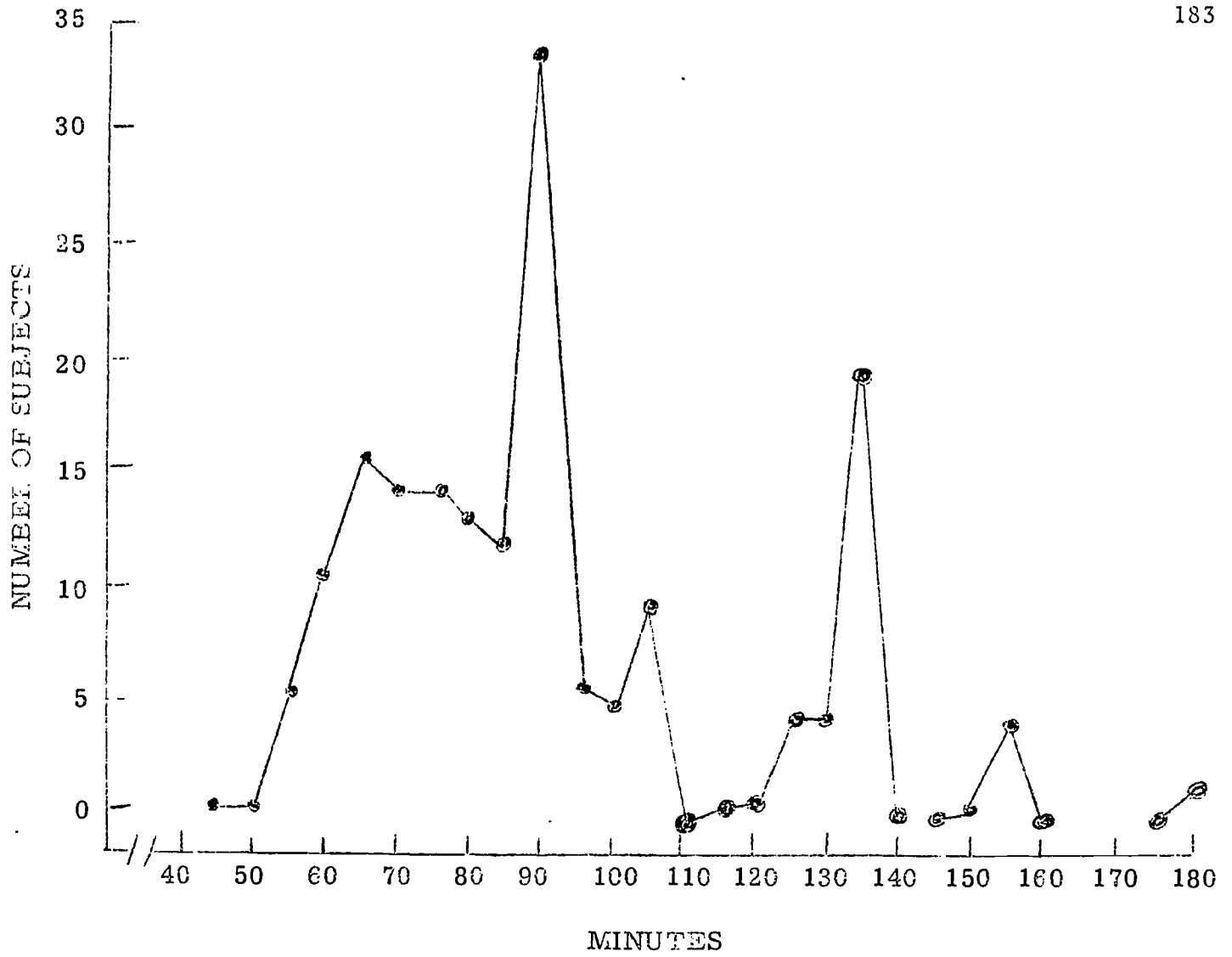


FIGURE 1. TIME IN MINUTES EXPERIMENTAL SUBJECTS REQUIRED FOR PROGRAMED TEXT

AN EVALUATION OF THE SEQUENTIAL ANTHROPOLOGY  
CURRICULUM PROJECT, 1966, GRADES 1, 2, 4, 5

James A. Wash, Jr.

INTRODUCTION

The objectives of the process of evaluation of the Sequential Anthropology Curriculum Project were to determine the effectiveness of the materials developed by the staff of the project in promoting student learning of anthropology and to obtain evidence as to the effect of special training in anthropology for teachers at the various grade levels encompassed by the project.

PROJECT SAMPLE

The students included in the Anthropology Curriculum Project were students in selected schools in Grade 1, Grade 2, Grade 4, and Grade 5. The distribution of the sample by grade level and by group are shown in Table 1.

METHOD

Since there were two forms of achievement tests at each grade level, the sample within each grade level was subdivided into two groups. In the first of the two groups, Form A of the Anthropology Achievement Test was administered as the pretest measure and Form B of the Anthropology Achievement Test was administered as the posttest measure of achievement in anthropology. In the second group at each grade level, Form B of the Anthropology Achievement Test was administered as the pretest measure and Form A of the Anthropology Achievement Test was employed as the posttest measure of achievement. Each subgroup was similarly divided into two groups, one being experimental group and the other labeled as the control group. The distribution of the sample by subgroups and by experimental group and control group is shown in Table 2.

The subgroup labeled AB at each grade level indicates that Form A of the achievement test was administered as the pretest and Form B of the achievement test was administered as the posttest measure. The subgroup labeled BA at each grade level indicates that Form B of the achievement test was employed as the pretest and Form A of the achievement test was administered as the posttest measure of achievement.

A least-squares analysis of variance technique was employed to analyze the posttest scores in each subgroup of each grade level. The covariates examined were sex, group, and pretest scores. The criterion variable was the posttest score on the Anthropology Achievement Test. Interaction effects of group and sex were examined through the use of the Duncan Multiple Range Test. The null hypotheses were rejected when the F-value was equal to or exceeded the F-value required for the 0.05 level of significance.

## FINDINGS

### Grade 1 -- Group AB

The analysis of variance for posttest scores for Grade 1, Group AB is found in Table 3. There were no significant differences in anthropology achievement between the experimental group and the control group. Similarly, there were no significant differences in anthropology achievement attributable to the sex of the student. The only significant relationship revealed by the analysis indicates that the pretest score on Form A was a significant predictor of achievement in anthropology as measured by Form B of the Anthropology Achievement Test ( $F = 20.66$ ;  $P \leq 0.01$ ). The interaction effects of group and sex were not statistically significant.

The means of the pretest scores obtained from Form A of the anthropology Achievement Test and the means of the posttest score obtained from Form B of the Anthropology Achievement Test by group and by sex are reported in Table 4.

### Group 1 - Group BA

The analysis of variance for posttest scores obtained from Form A of the Anthropology Achievement Test indicates that there were no significant differences in achievement in anthropology between the experimental and control group. There were no significant differences in achievement due to sex. Interaction effects of group and sex did not prove to be statistically significant. Of the variable considered, only the pretest score on Form B of the Anthropology Achievement Test proved to be a significant predictor of achievement in anthropology as measured by the scores obtained from the administration of Form A as the posttest ( $F = 84.05$ ;  $p \leq 0.01$ ). The results of the analysis of variance is found in Table 5.

The means on pretest Form B of the Anthropology Achievement Test and on posttest Form A of the Anthropology Achievement Test are found in Table 6.



#### Grade 2 - Group AE

The results of the analysis of variance for posttest scores resulting from the administration of Form B of the Anthropology Achievement Test for Grade 2 are found in Table 7. It will be noted that there were no significant differences in anthropology achievement between the experimental group and the control group. Likewise, no significant differences are noted due to sex. The interaction effects of group and sex were not statistically significant. The pretest score obtained through the administration of Form A of the Anthropology Achievement Test was the only significant predictor of achievement in anthropology ( $F = 9.04$ ;  $p \leq 0.01$ ).

Means on pretest Form A of the Anthropology Achievement Test and posttest Form B of the Anthropology Achievement Test by group and by sex are found in Table 8.

#### Grade 2 - Group BA

The analysis of variance of posttest scores obtained from form A of the Anthropology Achievement Test for Grade 2 reveals no significant differences in achievement in anthropology between the experimental group and the control group. The results of the analysis of variance are found in Table 9.

There were no significant differences in achievement in anthropology between the sexes. Similarly, there were no statistically significant interaction effects of sex and group on achievement in anthropology. The pretest score for Form B of the Anthropology Achievement Test proved to be a significant predictor of achievement in anthropology ( $F = 20.47$ ;  $p \leq 0.01$ ).

The means of scores from pretest Form B and the means of posttest Form A by sex and group are reported in Table 10.

#### Grade 4 - Group AE

The results of the analysis of variance of posttest scores on Form B, Grade 4, Anthropology Achievement Test are found in Table 11. The difference in achievement in anthropology between the experimental group and the control group was found to be significant in favor of the experimental group ( $F = 11.06$ ;  $p \leq 0.01$ ). No other statistically significant findings are reported. However, the pretest score on Form A of the Anthropology Achievement Test proved to be a significant predictor of achievement in anthropology as measured by the posttest scores obtained from Form B of the Anthropology Achievement Test ( $F = 13.99$ ;  $p \leq 0.01$ ).

The means of the pretest (Form A) and the means of the posttest (Form B) by sex and group are reported in Table 12.

#### Grade 4 - Group BA

The analysis of variance of the posttest scores on Form A of the Grade 4 Anthropology Achievement Test reveals no significant differences in achievement in anthropology between the experimental group and the control group. There were no significant differences in achievement in anthropology between the sexes. The interaction effects of sex and group were not statistically significant. Scores attained on Form B of the Grade 4 Anthropology Achievement Test were significant predictors of achievement in anthropology ( $F = 55.24$ ;  $p \leq 0.01$ ). The results of the analysis are found in Table 13.

The means on both pretest and posttest are reported by group and by sex in Table 14.

#### Grade 5 - Group AB

The results of the analysis of variance of posttest scores for Form B of the Grade 5 Anthropology Achievement Test are found in Table 15. There was a significant difference in achievement in anthropology from pretest to posttest in favor of the experimental group ( $F = 4.68$ ;  $p \leq 0.05$ ). There was no significant difference in achievement in anthropology between the sexes nor was the interaction effects of group and sex statistically significant. The pretest scores achieved by students on Form A of the Grade 5 Anthropology Achievement Test proved to be a significant predictor of achievement in anthropology as measured by the posttest score achieved on Form B of the Grade 5 Anthropology Achievement Test ( $F = 90.72$ ;  $p \leq 0.01$ ).

Table 16 reports the means on the pretest and posttest by group and by sex for Grade 5, group AB.

#### Grade 5 - Group BA

There was no significant difference in achievement in anthropology for the group in which Form B of the Grade 5 Anthropology Achievement Test was employed as the pretest and Form A of the Grade 5 Anthropology Achievement Test was administered as the posttest measure. Similarly, there was no significant difference in achievement between the sexes. The interaction effects of group and sex were not statistically significant. Scores on the pretest were significant predictors of achievement in anthropology as measured by the posttest ( $F = 114.85$ ;  $p \leq 0.01$ ). The results of the analysis of variance are found in Table 17.

The means of the pretest scores on Form B of the Grade 5 Anthropology Achievement Test and the means of the posttest scores on Form A of the Grade 5 Anthropology Achievement Test by group and by sex are reported in Table 18.

## DISCUSSION

The analyses of data for achievement in anthropology by students in Grade 1, Grade 2, Grade 4, Grade 5 yield ample evidence that students in the elementary grades can and do learn the anthropology content presented to them in the Sequential Anthropology Curriculum Project. There were significant gains in anthropology knowledge at each grade level and by all groups. In all but two subgroups (Grade 4, Group AB and Grade 5, Group AB) the gains in achievement were present regardless of whether the student was a member of the experimental group or a control group. Remembering that the difference in treatment between the experimental groups and the control groups were differences in teacher treatment rather than student treatment, the results of the investigation are not surprising. It is impossible to attribute the significant differences reported to differences in teacher training. It is also impossible with the evidence in hand to state unequivocally that the significant differences were not due to the special training received by the teachers of the students in the experimental group. The variables uncontrolled and some unknown make any inference as to the relationship between the training of the teacher, per se, and the achievement of students dangerous.

We would like to be able to substantiate the point that the materials for teachers developed by the staff members of the Sequential Anthropology Project were of such a nature as to make special training in anthropology for teachers unnecessary to the orderly presentation of the discipline. Further, that the combination of teacher materials, student tests, and other learning aids were effective in conveying anthropological concepts is evident from the data presented.

## CONCLUSIONS

The following can be concluded from the data gathered and the analyses presented:

1. Students in the elementary school can learn the content of the materials presented by the Sequential Anthropology Curriculum Project.
2. The effect of special training in anthropology for teachers on the achievement of students remains unknown.

TABLE 1  
DISTRIBUTION OF SAMPLE BY GRADE AND GROUP

		Experimental	Control
Grade 1	Male	87	265
	Female	68	224
Grade 2	Male	63	219
	Female	55	193
Grade 4	Male	72	132
	Female	80	143
Grade 5	Male	122	144
	Female	129	187

TABLE 2  
SAMPLE DISTRIBUTION BY GROUP AND SUBGROUP

		Subgroup A	Subgroup B
Grade 1	Experimental	40	115
	Control	296	193
Grade 2	Experimental	55	63
	Control	195	217
Grade 4	Experimental	55	97
	Control	168	107
Grade 5	Experimental	76	175
	Control	157	174

TABLE 3  
ANALYSIS OF VARIANCE FOR POSTTEST SCORES, GROUP AB, FIRST GRADE  
(N = 336)

Source	df	Sum of Squares	Mean Squares	F
Total SS	335	3815.33		
Model SS	4	261.84	65.46	6.10**
Error SS	331	3553.49	10.73	
Sex	1	8.73	8.73	0.81
Group	1	11.51	0.12	0.01
Group X Sex	1	17.76	17.76	1.65
Pretest (Form A)	1	221.81	221.81	20.66**

\*\* p < .01

TABLE 4

MEANS AND STANDARD DEVIATIONS OF PRETEST SCORES AND  
POSTTEST SCORES BY GROUP AND SEX, FIRST GRADE, GROUP AB

(N = 336)

	Form A Pretest		Form B Posttest	
	Mean	Standard Deviation	Mean	Standard Deviation
Experimental Group	8.25	2.37	11.00	3.65
Control Group	10.57	2.81	11.23	3.34
Male	10.11	2.67	11.47	3.60
Female	10.51	3.07	11.64	3.14

TABLE 5

ANALYSIS OF VARIANCE FOR POSTTEST SCORES, FORM A, FIRST GRADE

(N = 308)

Source	df	Sum of Squares	Mean Squares	F
Total SS	307	4317.52		
Model SS	4	986.07	246.52	22.42
Error SS	303	3331.45	10.99	0.10
Sex	1	1.07	1.07	2.05
Group	1	22.25	22.25	
Group X Sex	1	1.39	1.39	0.13
Pretest (Form B)	1	924.17	924.17	84.05**

\*\* p < 0.01

TABLE 6

MEANS AND STANDARD DEVIATIONS OF PRETEST SCORES AND  
POSTTEST SCORES BY GROUP AND SEX, FIRST GRADE, GROUP BA

(N = 308)

	Form B Pretest		Form A Posttest	
	Mean	Standard Deviation	Mean	Standard Deviation
Experimental Group	10.63	2.87	14.11	4.27
Control Group	11.07	2.49	14.98	3.39
Male	11.00	2.71	14.68	3.41
Female	10.79	2.57	14.62	4.17

TABLE 7  
ANALYSIS OF VARIANCE FOR POSTTEST SCORES, FORM B, SECOND GRADE  
GROUP AB  
(N = 250)

Source	df	Sum of Squares	Mean Squares	F
Total SS	249	4732.40		
Model SS	4	189.64	47.41	2.56 *
Error SS	245	4542.76	18.54	
Sex	1	21.10	21.10	1.14
Group	1	1.29	1.29	0.07
Group X Sex	1	7.02	7.02	0.38
Pretest (Form A)	1	167.55	167.55	9.04**

\* p \_ 0.05

\*\* p \_ 0.01

TABLE 8  
MEANS AND STANDARD DEVIATION OF PRETEST SCORES AND  
POSTTEST SCORES BY GROUP AND SEX, SECOND GRADE, GROUP AB  
(N = 250)

	Form A Pretest		Form B Posttest	
	Mean	Standard Deviation	Mean	Standard Deviation
Experimental Group	11.34	2.26	18.57	3.87
Control Group	10.83	2.69	18.19	4.51
Male	10.91	2.73	18.50	4.53
Female	10.98	2.49	18.05	4.20

TABLE 9

ANALYSIS OF VARIANCE FOR POSTTEST SCORES, FORM A, SECOND GRADE  
GROUP BA

(N = 280)

Source	df	Sum of Squares	Mean Squares	F
Total SS	279	5028.40		
Model SS	4	384.40	98.10	5.69
Error SS	275	4643.00	16.89	
Sex	1	12.20	12.20	0.72
Group	1	2.42	2.42	0.14
Group X Sex	1	22.81	22.81	1.35
Pretest (Form B)	1	345.66	345.66	20.47**

\*\* p \_ 0.01

TABLE 10

MEANS AND STANDARD DEVIATIONS OF PRETEST SCORES AND  
POSTTEST SCORES BY GROUP AND SEX, SECOND GRADE, GROUP BA

(N = 280)

	Form B Pretest		Form A Posttest	
	Means	Standard Deviation	Mean	Standard Deviation
Experimental Group	9.96	2.31	16.80	4.74
Control Group	10.56	2.95	16.86	4.12
Male	10.61	2.83	16.87	4.33
Female	10.20	2.81	16.83	4.20

TABLE 11  
ANALYSIS OF VARIANCE FOR POSTTEST SCORES, FORM B, FOURTH GRADE  
(N = 224)

Source	df	Sum of Squares	Mean Squares	F
Total SS	223	7827.93		
Model SS	4	2209.01	552.25	21.52**
Error SS	219	5618.92	25.66	
Sex	1	18.92	18.92	0.71
Group	1	283.88	283.88	11.06**
Group X Sex	1	91.23	91.23	.56
Pretest (Form A)	1	2026.62	2026.62	78.99

\*\* p < 0.01

TABLE 12  
MEANS AND STANDARD DEVIATIONS OF PRETEST SCORES AND  
POSTTEST SCORES BY GROUP AND SEX, FOURTH GRADE, GROUP AB

(N = 224)

	Form A Pretest		Form B Posttest	
	Means	Standard Deviation	Means	Standard Deviation
Experimental Group	11.69	3.08	22.56	5.86
Control Group	12.79	4.15	20.83	5.92
Male	12.46	3.93	21.34	5.61
Female	12.53	3.96	21.18	6.32



TABLE 13  
ANALYSIS OF VARIANCE FOR POSTTEST SCORES, FORM A, FOURTH GRADE  
(N = 290)

Source	df	Sum of Squares	Mean Squares	F
Total SS	289	7683.30		
Model SS	4	1283.33	320.83	14.29 **
Error SS	285	6399.97	22.46	
Sex	1	0.91	0.91	0.04
Group	1	23.40	23.40	1.04
Group X Sex	1	3.07	3.07	0.14
Pretest (Form B)	1	1240.45	1240.45	55.24 **

\*\* p \_ 0.01

TABLE 14  
MEANS AND STANDARD DEVIATIONS OF PRETEST SCORES AND  
POSTTEST SCORES BY GROUP AND SEX, FOURTH GRADE, GROUP BA  
(N = 290)

	Form B Pretest		Form A Posttest	
	Means	Standard Deviation	Means	Standard Deviation
Experimental Group	11.48	3.28	18.13	4.94
Control Group	12.02	3.55	18.01	5.32
Male	12.34	3.57	18.48	5.35
Female	11.62	3.35	17.74	4.99

TABLE 15  
ANALYSIS OF VARIANCE FOR POSTTEST SCORES, FORM B, FIFTH GRADE  
(N = 235)

Source	df	Sum of Squares	Mean Squares	F
Total SS	234	9495.42		
Model SS	4	2753.53	688.38	23.48**
Error SS	230	6741.89	29.31	
Sex	1	31.24	31.24	1.07
Group	1	137.03	137.03	4.68*
Group X Sex	1	78.78	78.78	2.69
Pretest (Form A)	1	2659.35	2659.35	90.72**

\* p = 0.05

\*\* p = 0.01

TABLE 16  
MEANS AND STANDARD DEVIATIONS OF PRETEST SCORES AND  
POSTTEST SCORES BY GROUP AND SEX, FIFTH GRADE, Form AB  
(N = 235)

	Form A Pretest		Form B Posttest	
	Mean	Standard Deviation	Mean	Standard Deviation
Experimental Group	18.60	4.10	26.15	5.48
Control Group	19.32	4.27	24.93	6.79
Male	19.16	4.38	25.19	6.65
Female	19.03	4.10	25.43	6.23

TABLE 17  
ANALYSIS OF VARIANCE FOR POSTTEST SCORES, FORM A, FIFTH GRADE  
(N = 350)

Source	df	Sum of Squares	Mean Squares	F
Total SS	349	13,054.22		
Model SS	4	3,285.65	821.41	29.01**
Error SS	345	9,768.57	28.31	
Sex	1	11.49	11.49	0.41
Group	1	22.42	22.42	0.79
Group X Sex	1	0.58	0.58	0.02
Pretest (Form B)	1	3,251.94	3,251.94	114.85**

\*\* p \_ 0.01

TABLE 18  
MEANS AND STANDARD DEVIATION OF PRETEST SCORES AND  
POSTTEST SCORES BY GROUP AND SEX, FIFTH GRADE, FORM BA  
(N = 350)

	Form B Pretest		Form A Pretest	
	Mean	Standard Deviation	Mean	Standard Deviation
Experimental Group	19.03	4.79	24.91	5.83
Control Group	19.15	4.60	24.44	6.44
Male	19.12	4.80	24.90	6.50
Female	19.07	4.63	24.48	5.81

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